

10/781499

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STRUCTURE FILE UPDATES: 14 MAR 2006 HIGHEST RN 876856-38-1  
DICTIONARY FILE UPDATES: 14 MAR 2006 HIGHEST RN 876856-38-1

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-key terms

	E METHIONINE/CN
L1	2 S E3
	E CYSTEINE/CN 5
L2	2 S E3
	E CYSTEIN/CN 5
L3	1 S E3
L4	6 S (THREONINE OR LYSINE OR ISOLEUCINE)/CN
	E CARBOHYDRATES/CN 5
	E CARBOHYDRATE/CN 5
L5	10 S L1 OR L2 OR L3 OR L4
	E NADPH/CN 5
L6	1 S E3
	E NADP/CN 5
L7	1 S E3
L8	2 S L6 OR L7

FILE 'HCAPLUS' ENTERED AT 11:39:51 ON 16 MAR 2006  
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FILE COVERS 1907 - 16 Mar 2006 VOL 144 ISS 12  
FILE LAST UPDATED: 15 Mar 2006 (20060315/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

L1 2 SEA FILE=REGISTRY ABB=ON PLU=ON METHIONINE/CN  
L2 2 SEA FILE=REGISTRY ABB=ON PLU=ON CYSTEINE/CN  
L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON CYSTEIN/CN  
L4 6 SEA FILE=REGISTRY ABB=ON PLU=ON (THREONINE OR LYSINE OR  
ISOLEUCINE)/CN  
L5 10 SEA FILE=REGISTRY ABB=ON PLU=ON L1 OR L2 OR L3 OR L4  
L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON NADPH/CN  
L7 1 SEA FILE=REGISTRY ABB=ON PLU=ON NADP/CN  
L8 2 SEA FILE=REGISTRY ABB=ON PLU=ON L6 OR L7  
L12 16860 SEA FILE=HCAPLUS ABB=ON PLU=ON (MICROORGANISM OR MICRO  
ORGANISM) (10A) (PREP? OR PRODUCE# OR PRODUCING OR PROD# OR  
MANUF?)  
L13 3502 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND (L5 OR METHIONINE  
OR CYSTEIN# OR THREONINE OR LYSINE OR ISOLEUCINE OR ISO  
LEUCINE OR SUGAR OR CARBOHYDRATE OR NUCLEIC OR DNA OR  
DEOXYRIBONUCLEIC OR DEOXY RIBONUCLEIC OR LIPID OR LYS OR  
MET OR CYS OR THR OR LYS OR ILE)  
L14 77 SEA FILE=HCAPLUS ABB=ON PLU=ON L13 AND (L8 OR NADPH OR  
NADP OR (COENZYME OR CO ENZYME) (W) (II OR 2) OR NICOTINAMIDE  
ADENINE(2W)PHOSPHATE OR (TRIPHOSPHOPYRIDINE OR TRI(W) (PHOS  
PHOPYRIDINE OR PHOSPHO PYRIDINE) OR TRIPHOSPHO PYRIDINE) (W)  
NUCLEOTIDE)  
L15 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 AND CULTUR?

L15 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN  
ED Entered STN: 10 Sep 2004

ACCESSION NUMBER: 2004:740475 HCAPLUS

DOCUMENT NUMBER: 141:239279

TITLE: Method for production of evolved microorganisms  
with modified metabolic pathways

INVENTOR(S): Chateau, Michel; Gonzalez, Benjamin;  
Meynial-Salles, Isabelle; Soucaille, Philippe  
Noel Paul; Zink, Olivier

PATENT ASSIGNEE(S): Metabolic Explorer, Fr.

SOURCE: PCT Int. Appl., 113 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

Searcher : Shears 571-272-2528

10/781499

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004076659	A2	20040910	WO 2004-FR354	20040217
WO 2004076659	A3	20041216		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
FR 2851256	A1	20040820	FR 2003-1924	20030218
FR 2851255	A1	20040820	FR 2003-5768	20030514
FR 2854902	A1	20041119	FR 2003-5769	20030514
FR 2862067	A1	20050513	FR 2003-13054	20031106
EP 1597364	A2	20051123	EP 2004-711626	20040217
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			FR 2003-1924	A 20030218
			FR 2003-5768	A 20030514
			FR 2003-5769	A 20030514
			FR 2003-13054	A 20031106
			WO 2004-FR354	W 20040217

AB The invention relates to a method for the **preparation** of evolved **microorganisms** which permit a modification of metabolic pathways, characterized in comprising the following steps: (a) **production** of a modified **microorganism** by genetic modification of initial microbial in order to inhibit the **production** of or the consumption of a metabolite when the **microorganism** is cultivated in a defined medium which also affects the capacity of the microorganism for growth, (b) **culture** of the modified microorganisms previously obtained in said defined medium to induce evolution where it might be necessary to add a co-substrate to the defined medium in order to permit said evolution, (c) selection of modified microorganisms which are capable of growth in the defined medium, optionally with a co-substrate. Thus, *E. coli*  $\Delta$ MetE mutants were prepared These **methionine** synthase deletion mutants are **Met** auxotrophs. Growth of these mutants in minimal medium containing methylmercaptan resulted in the growth of *E. coli* strains with **methionine** synthase activity. This activity was supplied by a mutated cystathionine  $\gamma$ -synthase gene (*metB\**). The *K<sub>m</sub>*'s for methylmercaptan of MetB (wild-type) and of MetB\* were 277 and 6 mM, resp. The corresponding *V<sub>max</sub>* values were 13.9 and 5.6 mU/mg protein, resp. The *K<sub>m</sub>* (for **cysteine**) and *V<sub>max</sub>* of the cystathionine  $\gamma$ -synthase activity of the MetB\* enzyme were reduced 13-fold. Comparison of wild-type and mutant *E. coli* grown on minimal medium containing glucose and methylmercaptan indicated that the mutant produced more intracellular Ala, pyruvate, ketobutyrate, and 2-ketoisocaproate and less Trp, NVal, NLeu, Leu, and **Met**. Addnl., the mutant produced more extracellular Glu, **Ile**, **Thr**, Val, and 2-ketoisocaproate and less pyruvate, NLeu, and Trp.

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IT 52-90-4, L-Cysteine, biological studies  
56-87-1, L-Lysine, biological studies 63-68-3\*\*  
\* , L- \*\*\*Methionine, biological studies 72-19-5, L-  
Threonine, biological studies 73-32-5, L-  
Isoleucine, biological studies  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(biosynthetic pathway for; method for **production** of evolved  
**microorganisms** with modified metabolic pathways)  
IT 53-57-6, NADPH 53-59-8, NADP  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(biosynthetic pathway involving; method for **production** of  
evolved **microorganisms** with modified metabolic pathways)

L15 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 16 May 2000

ACCESSION NUMBER: 2000:316789 HCAPLUS

DOCUMENT NUMBER: 132:333448

TITLE: Enzymic manufacture of 5'-GMP from 5'-IMP

INVENTOR(S): Kawasaki, Hisashi; Takenaka, Yasuhiro; Matsui,  
Hiroshi; Kurahashi, Osamu

PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000135097	A2	20000516	JP 1998-308796	19981029
PRIORITY APPLN. INFO.:			JP 1998-308796	19981029

AB GMP, useful as a umami seasoning, is manufactured by treatment of IMP, NADP+, and NH3 with GMP reductase (I). I may be derived from Escherichia coli and may be **produced** by recombinant **microorganisms** in which activity of I is increased due to amplification of gene for I. E. coli JM109 was transformed with a plasmid pUCguaC bearing gene for I prepared by PCR amplification using chromosomal DNA of E.coli K12 W3110. The transformants were **cultured** in a LB medium containing ampicillin and IPTG for 8 h to give a cell free crude preparation of I. A mixture of Tris-HCl, NADP+, (NH2)2SO4, IMP, and the cell free extract was incubated at 37° for 24 h to give 0.5% GMP.

IT 53-59-8, NADP

RL: CAT (Catalyst use); USES (Uses)

(enzymic manufacture of 5'-GMP from 5'-IMP, NADP, NH3, and GMP reductase)

L15 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 12 Jan 1999

ACCESSION NUMBER: 1999:20711 HCAPLUS

DOCUMENT NUMBER: 130:207116

TITLE: Microaerobic lysine fermentations and  
metabolic flux analysis

AUTHOR(S): Hua, Qiang; Fu, Peng-Cheng; Yang, Chen; Shimizu,  
Kazuyuki

CORPORATE SOURCE: Department of Biochemical Engineering and Science,  
Kyushu Institute of Technology, Fukuoka, 820,

Searcher : Shears 571-272-2528

10/781499

SOURCE: Japan  
Biochemical Engineering Journal (1998), 2(2),  
89-100  
CODEN: BEJOFV; ISSN: 1369-703X  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Oxygen supply is known to have an important influence on microaerobic production of amino acids, and several researches have shown that the behavior of many **L-lysine-producing microorganisms** under various aeration conditions are different. In order to investigate the fermentative behavior under microaerobic condition using *Corynebacterium glutamicum* ATCC 21253, several expts. were carried out where dissolved oxygen concentration was controlled at either 1% or 5%, as well as fully aerated condition. The calcn. of intracellular metabolic fluxes was made to illustrate two kinds of metabolic characteristics observed in microaerobic **cultures**. Evaluated flux distributions indicated that the activities of TCA cycle enzymes decreased with the decrease in oxygen supply, resulting in the amplified phosphoenolpyruvate (PEP) carboxylation which contributed to the 30% of increase in **lysine** yield for the microaerobic culture at 5% DO concentration as compared with the case of aerobic fermentation Further

anal. indicates that **NADPH** may not be the yield-limiting factor, while low split-ratio of PEP carboxylation at PEP or aspartate branch at oxaloacetate is considered to limit **lysine** production under microaerobic conditions.

IT **56-87-1P, Lysine**, preparation  
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)  
(microaerobic **lysine** ferms. and metabolic flux anal.)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 14 Mar 1997

ACCESSION NUMBER: 1997:174707 HCAPLUS

DOCUMENT NUMBER: 126:314299

TITLE: Metabolic carbon labeling systems. Modeling, simulation, analysis, and evaluation

AUTHOR(S): Wiechert, Wolfgang

CORPORATE SOURCE: Inst. Biotechnologie, Forschungszentrum Juelich G.m.b.H., Juelich, D-52425, Germany

SOURCE: Berichte des Forschungszentrums Juelich (1996), Juel-3301, 1-238 pp.

CODEN: FJBEE5; ISSN: 0366-0885

DOCUMENT TYPE: Report

LANGUAGE: German

AB Modeling of living systems was described by in vivo stationary flux determination as a tool for metabolic engineering, based on <sup>13</sup>C labeling from

extracted amino acids and a math. model for estimation of all intracellular fluxes. NMR spectroscopy and metabolite balancing were combined for determination of fluxes. <sup>13</sup>C-labeled substrate was added to continuously **cultured microorganisms** followed by cell hydrolysis, **preparative** anal. separation, and NMR spectroscopy of labeled amino acids. Metabolic <sup>13</sup>C-labeling systems and exchange fluxes were

Searcher : Shears 571-272-2528

described in a model, and the effects of exchange fluxes on the metabolic labeling system were analyzed. Equations of balancing for metabolite, C atom, and isotopomer pools were defined, expressing quant. the relation between fluxes and parts of labeling. The anal. of stability of C labeling, dissipative systems, and isotopomer labeling systems were simulated, and numerical aspects of simulation were discussed. The distribution of labeling in the cyclic pentose phosphate pathway of the yeast *Pichia stipitis* was studied by simulation. Information values of measurement data regarding the estimation of intracellular fluxes were estimated by statistical methods.

The

stationary fluxes in central metabolism of *Corynebacterium glutamicum* were determined and compared with a nonstationary labeling experiment, and differences in model and measurement data were discussed. A comprehensive approach exclusively based on the fundamental enzyme reactions, the fate of the C atoms of individual reactions, and the metabolite balance of the culture were developed, and no information on the energy balance was required.

IT 53-57-6, NADPH 70-54-2, Lysine

RL: BPR (Biological process); BSU (Biological study, unclassified);

BIOL (Biological study); PROC (Process)

(modeling, simulation, anal., and evaluation of metabolic C labeling systems)

L15 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 12 May 1984

ACCESSION NUMBER: 1979:588488 HCAPLUS

DOCUMENT NUMBER: 91:188488

TITLE: Enzymatic conversion of aclacinomycin A to Y by a specific oxidoreductase in *Streptomyces*

AUTHOR(S): Yoshimoto, Akihiro; Ogasawara, Tatsuo; Kitamura, Iwao; Oki, Toshikazu; Inui, Taiji; Takeuchi, Tomio; Umezawa, Hamao

CORPORATE SOURCE: Cent. Res. Lab., Sanraku-Ocean Co. Ltd., Kanagawa, Japan

SOURCE: Journal of Antibiotics (1979), 32(5), 472-81

CODEN: JANTAJ; ISSN: 0021-8820

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB A specific oxidoreductase converting aclacinomycin A (I) to a new analog, aclacinomycin Y (II) was purified to apparent homogeneity from the culture filtrate of aclacinomycin-producing microorganisms. The isolated enzyme was a weakly acidic protein (isoelec. point, 5.9) with a mol. weight of .apprx.72,000. The enzymic reaction required O<sub>2</sub> and had a pH optimum at 5.5. NAD, NADP, FAD, FMN, phenazine methosulfate, and 2,6-dichlorophenolindophenol were all inactive as electron acceptors in the enzyme reaction. The enzyme catalyzed the oxidation of the terminal sugar, L-cinerulose, of the trisaccharide moiety of I to L-aculose (2,3,6-trideoxyhex-2-enopyranos-4-ulose) with removal of 2 electrons. The enzyme is thus an oxidase capable of modifying anthracyclic triglycosides by oxidizing their terminal sugars

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FILE 'JAPIO' ENTERED AT 11:39:52 ON 16 MAR 2006  
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L16 25 S L15  
L17 25 DUP REM L16 (0 DUPLICATES REMOVED)

L17 ANSWER 1 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2005-533151 [54] WPIDS  
DOC. NO. CPI: C2005-161616  
TITLE: New recombinant microorganism of the  
Enterobacteriaceae family, containing enhanced or  
over-expressed yaaU open reading frame that encodes  
polypeptide, useful for production of L-amino acids  
e.g. L-isoleucine and L-valine.  
DERWENT CLASS: B05 D16 E16  
INVENTOR(S): DUSCH, N  
PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG; (DUSC-I) DUSCH N  
COUNTRY COUNT: 108  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2005064000	A1	20050714	(200554)*	EN	56
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS					
IT KE LS LT LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR					
TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ					
DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP					
KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA					
NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR					
TT TZ UA UG UZ VC VN YU ZA ZM ZW					
DE 10361268	A1	20050728	(200554)		
US 2005153403	A1	20050714	(200554)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005064000	A1	WO 2004-EP14082	20041210
DE 10361268	A1	DE 2003-10361268	20031224
US 2005153403	A1	Provisional	
		US 2004-607362P	20040907
		US 2004-17120	20041221

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PRIORITY APPLN. INFO: DE 2003-10361268 20031224

AN 2005-533151 [54] WPIDS

AB WO2005064000 A UPAB: 20050823

NOVELTY - Recombinant microorganism (I) of the Enterobacteriaceae family (which contains an enhanced or over-expressed yaaU open reading frame (ORF) that encodes a polypeptide (which is annotated as a putative **sugar** transporter and produces L-amino acids in an improved manner)) is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) a process for **preparing** L-amino acids by fermenting recombinant **microorganisms** of the Enterobacteriaceae family, characterized in that: the desired L-amino acid-**producing microorganisms**, in which the yaaU ORF, or nucleotide sequence or alleles encoding its gene products, is/are enhanced, in particular over-expressed, are **cultured** in a medium under conditions under which the desired L-amino acid is enriched in the medium or in the cells; and the desired L-amino acid is isolated, with constituents of the fermentation broth, and/or the biomass remaining in its/their entirety or in portions (from at least 0 to 100 %) in the isolated product or being removed completely; and

(2) preparation of (I).

USE - (I) is useful for preparing L-amino acids (L-asparagine, L-serine, L-glutamate, L-glycine, L-alanine, L-**cysteine**, L-valine, L-**methionine**, L-proline, L-**isoleucine**, L-leucine, L-tyrosine, L-phenylalanine, L-histidine, L-**lysine**, L-tryptophan, L-arginine or L-homoserine; preferably L-**isoleucine**, L-valine, L-**methionine**, L-homoserine, L-tryptophan or L-**lysine**) (claimed).

ADVANTAGE - In the desired L-amino acid-**producing microorganisms**, the yaaU ORF, or nucleotide sequence or alleles encoding its gene products, is/are enhanced, in particular over-expressed; and the desired L-amino acid is isolated, with constituents of the fermentation broth, and/or the biomass remaining in its/their entirety or in portions (from at least 0 to 100%) in the isolated product or being removed completely (claimed).

Dwg.0/1

L17 ANSWER 2 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 2004-757988 [74] WPIDS

DOC. NO. CPI: C2004-266056

TITLE: Production of L-amino acids e.g. L-**threonine** by fermentation involves **culturing** recombinant family Enterobacteriaceae **microorganisms producing** L-amino acid and having overexpressed yfiD open reading frame and/or pflB gene; and isolating.

DERWENT CLASS: B05 D16 E16

INVENTOR(S): FARWICK, M; RIEPING, M

PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG; (FARW-I) FARWICK M; (RIEP-I) RIEPING M

COUNTRY COUNT: 109

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
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WO 2004090149	A1	20041021	(200474)*	EN	52
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RW:	AT	BE	BG	BW	CH	CY	CZ	DE	DK	EA	EE	ES	FI	FR	GB	GH	GM	GR	HU	IE	IT	KE	LS	LU	MC	MW	MZ	NL	OA	PL	PT	RO	SD	SE	SI	SK	SL	SZ	TR	TZ	UG	ZM
-----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

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ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ  
 DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE  
 KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI  
 NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT  
 TZ UA UG UZ VC VN YU ZA ZM ZW

DE 10316109 A1 20041021 (200474)  
 US 2004235122 A1 20041125 (200478)  
 EP 1611245 A1 20060104 (200603) EN

R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU  
 LV MC MK NL PL PT RO SE SI SK TR

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004090149	A1	WO 2004-EP3207	20040326
DE 10316109	A1	DE 2003-10316109	20030409
US 2004235122	A1	US 2004-817431	20040405
EP 1611245	A1	EP 2004-739070	20040326
		WO 2004-EP3207	20040326

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1611245	A1 Based on	WO 2004090149

PRIORITY APPLN. INFO: DE 2003-10316109 20030409

AN 2004-757988 [74] WPIDS

AB WO2004090149 A UPAB: 20041117

NOVELTY - Production of L-amino acids by fermentation of recombinant Enterobacteriaceae involves **culturing microorganisms producing** L-amino acid and having overexpressed yfiD open reading frame (ORF) and/or pflB gene or nucleotide sequences coding for the gene products; and isolating amino acid.

DETAILED DESCRIPTION - Production of L-amino acids by fermentation of recombinant microorganisms of Enterobacteriaceae family involves:

(1) **culturing microorganisms**

**producing** L-amino acid and having overexpressed yfiD open reading frame (ORF) and/or pflB gene or nucleotide sequences coding for the gene products; and

(2) isolating amino acid in which optional constituents of the fermentation broth and/or entire or portions (0 - 100%) of the biomass, optionally remain.

INDEPENDENT CLAIMS are included for the following:

(1) method (M) for the production of L-threonine involving fermenting microorganisms of Enterobacteriaceae family having enhanced genes for the biosynthetic pathway of L-threonine selected from at least one of:

(a) the thrABC operon coding for aspartate kinase, homoserine dehydrogenase, homoserine kinase or **threonine** synthase; the pyc gene coding for pyruvate carboxylase;

(b) the pps gene for phosphoenolpyruvate synthase;

(c) the ppc gene coding for phosphoenolpyruvate carboxylase;

(d) the genes pntA and pntB coding for transhydrogenases;

(e) the gene rhtB imparting homoserine resistance;

(f) the mqo gene coding for malate:quinone oxidoreductase;

(g) the gene rhtC imparting **threonine** resistance;  
 (h) the thrE gene coding for the **threonine** export protein;  
 (i) the gdhA gene coding for glutamate dehydrogenase;  
 (j) the hns gene coding for the **DNA** bonding protein  
 HLP-II;  
 (k) the pgm gene phosphoglucomutase;  
 (l) the fba gene coding for fructose biphosphate aldolase;  
 (m) the ptsH gene coding for phosphohistidine protein hexose phosphotransferase;  
 (n) the ptsI gene coding for enzyme I of the phosphotransferase system;  
 (o) the crr gene coding for the glucose-specific IIA component;  
 (p) the ptsG gene coding for the glucose-specific IIBC component;  
 (q) the irp gene coding for the regulator of the leucine regulon;  
 (r) the csrA gene coding for the global regulator Csr;  
 (s) the fadA gene coding for the regulator of the fad regulon;  
 (t) the iclR gene coding for the regulator of central intermediary metabolism;  
 (u) the mopB gene coding for the 10 kDa chaperon;  
 (v) the ahpC gene coding for the small subunit of alkyl hydroperoxide reductase;  
 (w) the ahpF gene coding for the large subunit of alkyl hydroperoxide reductase;  
 (x) the cysK gene coding for cysteine synthase A;  
 (y) the cysB gene coding for the regulator of the cys regulon;  
 (z) the cysJ gene coding for the flavoprotein of NADPH sulfite reductase;  
 (a') the cysH gene coding for adenylyl sulfate reductase;  
 (b') the phoR gene coding for the positive regulator PhoB of the pho regulon;  
 (c') the phoR gene coding for the sensor protein of the pho regulon;  
 (d') the phoE gene coding for the protein E of the outer cell membrane;  
 (e') the pykF gene coding for pyruvate kinase I, which is stimulated by fructose;  
 (f') the pfkB gene coding for 6-phosphofructokinase II;  
 (g') the male gene coding for the periplasmic binding protein of maltose transport;  
 (h') the soda gene coding for superoxide dismutase;  
 (i') the rseA gene coding for a membrane protein with anti-sigmaE activity;  
 (j') the rseC gene coding for a global regulator of the sigmaE factor;  
 (k') the sucA gene coding for the decarboxylase subunit of 2-ketoglutarate dehydrogenase;  
 (l') the sucB gene coding for the dihydrolipoyl transsuccinase E2 subunit of 2-ketoglutarate dehydrogenase;  
 (m') the sucC gene coding for the beta -subunit of succinyl-CoA synthetase;  
 (n') the sucD gene coding for the alpha -subunit of succinyl-CoA synthetase;  
 (o') the adk gene coding for adenylate kinase;  
 (p') the hdeA gene coding for a periplasmic protein with chaperonin-type function;  
 (q') the icd gene coding for isocitrate dehydrogenase;  
 (r') the mglB gene coding for the periplasmic galactose-binding transport protein;

(s') the *lpd* gene coding for dihydrolipoamide dehydrogenase;  
 (t') the *aceE* gene coding for the E1 component of the pyruvate-dehydrogenase complex;  
 (u') the *sceF* gene coding for the E2 component of the pyruvate-dehydrogenase complex;  
 (v') the *pepB* gene coding for aminopeptidase B;  
 (w') the *aldH* gene coding for aldehyde dehydrogenase;  
 (x') the *bfr* gene coding for the iron-storage homoprotein;  
 (y') the *udp* gene coding for uridine phosphorylase; or  
 (z') the *resB* gene coding for the regulator of sigmaE-factor activity; and

(2) microorganisms of the Enterobacteriaceae family (preferably genus *Escherichia*) in which the *yfiD* ORF and/or the *pflB* gene or nucleotide sequence coding for their gene product are present in enhanced or overexpressed form.

USE - For the production of L-amino acids (such as L-asparagine, L-serine, L-glutamate, L-glycine, L-alanine, L-cysteine, L-valine, L-methionine, L-isoleucine, L-leucine, L-tyrosine, L-phenylalanine, L-histidine, L-lysine, L-tryptophan and L-arginine) by fermentation of recombinant microorganisms (claimed).

ADVANTAGE - The method results in an enhanced production of L-amino acids. The enhancement of *yfiD* ORF and *pflB* gene enhances the enzyme(s) of the known threonine-biosynthesis pathway, enzymes of the anaplerotic metabolism, enzymes for the production of reduced nicotinamide adenine dinucleotide phosphate, enzymes of glycolysis, PTS enzymes and/or enzymes of sulfur metabolism, and hence the production of L-amino acids.

Dwg.0/2

L17 ANSWER 3 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2004-653418 [63] WPIDS  
 CROSS REFERENCE: 2004-618123 [60]; 2004-618124 [60]  
 DOC. NO. CPI: C2004-233872  
 TITLE: New evolved microorganisms with altered metabolic pathways, useful e.g. for production of amino acids, are selected as mutants able to grow on defined media.  
 DERWENT CLASS: B04 D16  
 INVENTOR(S): CHATEAU, M; SOUCAILLE, P N P; ZINK, O; GONZALEZ, B; MEYNIAL, S I; MEYNIAL-SALLES, I  
 PATENT ASSIGNEE(S): (META-N) METABOLIC EXPLORER; (CHAT-I) CHATEAU M; (GONZ-I) GONZALEZ B; (MEYN-I) MEYNIAL-SALLES I; (SOUC-I) SOUCAILLE P N P; (ZINK-I) ZINK O  
 COUNTRY COUNT: 109  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG																
WO 2004076659	A2	20040910	(200463)*	FR	113																
RW:	AT	BE	BG	BW	CH	CY	CZ	DE	DK	EA	EE	ES	FI	FR	GB	GH	GM	GR	HU	IE	IT
	KE	LS	LU	MC	MW	MZ	NL	OA	PT	RO	SD	SE	SI	SK	SL	SZ	TR	TZ	UG	ZM	ZW
W:	AE	AG	AL	AM	AT	AU	AZ	BA	BB	BG	BR	BW	BY	BZ	CA	CH	CN	CO	CR	CU	CZ
	DE	DK	DM	DZ	EC	EE	EG	ES	FI	GB	GD	GE	GH	GM	HR	HU	ID	IL	IN	IS	JP
	KE	KG	KP	KR	KZ	LC	LK	LR	LS	LT	LU	LV	MA	MD	MG	MK	MN	MW	MX	MZ	NA
	NI	NO	NZ	OM	PG	PH	PL	PT	RO	RU	SC	SD	SE	SG	SK	SL	SY	TJ	TM	TN	TR
	TT	TZ	UA	UG	US	UZ	VC	VN	YU	ZA	ZM	ZW									
FR 2854902	A1	20041119	(200477)																		
US 2005054060	A1	20050310	(200519)																		
FR 2862067	A1	20050513	(200537)																		

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EP 1597364 A2 20051123 (200577) FR  
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU  
LV MC MK NL PT RO SE SI SK TR  
BR 2004007600 A 20060214 (200615)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004076659	A2	WO 2004-FR354	20040217
FR 2854902	A1	FR 2003-5769	20030514
US 2005054060	A1	US 2004-781499	20040218
FR 2862067	A1	FR 2003-13054	20031106
EP 1597364	A2	EP 2004-711626	20040217
		WO 2004-FR354	20040217
BR 2004007600	A	BR 2004-7600	20040217
		WO 2004-FR354	20040217

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1597364	A2 Based on	WO 2004076659
BR 2004007600	A Based on	WO 2004076659

PRIORITY APPLN. INFO: FR 2003-13054 20031106; FR  
2003-1924 20030218; FR  
2003-5768 20030514; FR  
2003-5769 20030514

AN 2004-653418 [63] WPIDS  
CR 2004-618123 [60]; 2004-618124 [60]  
AB WO2004076659 A UPAB: 20060302

NOVELTY - Method for **preparing** evolved

**microorganisms** (A) with modified metabolic pathways.

DETAILED DESCRIPTION - Method for **preparing** evolved

**microorganisms** (A) with modified metabolic pathways comprises:

(a) genetic modification of a microorganism to inhibit production or consumption of a metabolite when it is grown on a defined medium, thus affecting its ability to grow;

(b) growing the modified organism in the defined medium so that evolution can occur, optionally with addition of a co-substrate to allow evolution; and

(c) selecting as (A) cells able to grow on the medium, optionally in presence of co-substrate.

INDEPENDENT CLAIMS are also included for the following:

(1) (A) produced by the new method;

(2) method for producing an evolved protein (I) by **culturing** (A);

(3) evolved gene (II) that encodes (I); and

(4) (I) as new compounds.

USE - The evolved microorganisms (A), or evolved proteins (I) expressed by them, are useful in biotransformation processes, especially those involving **NADPH**-dependent enzymes, particularly synthesis of amino acids (**Met**, **Cys**, **Thr**, **Lys** or **Ile**) but also synthesis of **nucleic acids** or **lipids**, and metabolism of **sugars**.

ADVANTAGE - (A) provide more efficient production of selected metabolites than parent strains.

Searcher : Shears 571-272-2528

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Dwg.0/13

L17 ANSWER 4 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2004-450374 [42] WPIDS  
 DOC. NO. CPI: C2004-168802  
 TITLE: Metabolically engineered microorganism,  
 useful to produce e.g. ethanol, lactic acid  
 or antibiotics with decreased production of undesired  
 metabolic products, comprises two operative metabolic  
 pathways.  
 DERWENT CLASS: B04 B05 D16 E17  
 INVENTOR(S): BRO, C; NIELSEN, J; REGENBERG, B  
 PATENT ASSIGNEE(S): (FLUX-N) FLUXOME SCI AS  
 COUNTRY COUNT: 108  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2004048559	A1	20040610	(200442)*	EN	41
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
AU 2003292106	A1	20040618	(200471)		
EP 1565554	A1	20050824	(200556)	EN	
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
BR 2003016552	A	20051004	(200566)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004048559	A1	WO 2003-EP13231	20031125
AU 2003292106	A1	AU 2003-292106	20031125
EP 1565554	A1	EP 2003-767646	20031125
		WO 2003-EP13231	20031125
BR 2003016552	A	BR 2003-16552	20031125
		WO 2003-EP13231	20031125

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003292106	A1 Based on	WO 2004048559
EP 1565554	A1 Based on	WO 2004048559
BR 2003016552	A Based on	WO 2004048559

PRIORITY APPLN. INFO: GB 2002-27435

20021125

AN 2004-450374 [42] WPIDS

AB WO2004048559 A UPAB: 20040702

NOVELTY - Metabolically engineered microorganism (I) has one operative  
 metabolic pathway (where a metabolite (M1) is transformed in presence  
 of an enzyme (E1) into a second metabolite (M2), which is transformed  
 into a further metabolite (M3) in presence of an enzyme (E2)) and a  
 second operative metabolic pathway (where (M1) is transformed in

presence of an enzyme (E3) into (M3) without the involvement of (E2)).

**DETAILED DESCRIPTION** - Metabolically engineered micro-organism (I) has one operative metabolic pathway (in which a metabolite (M1) is transformed into a second metabolite (M2) in a reaction (where nicotinamide adenine dinucleotide (NAD) is a cofactor for an enzyme (E1)) that produces reduced nicotinamide adenine dinucleotide (NADH) and in which (M2) is transformed into at least one further metabolite (M3) in a reaction catalyzed by a second enzyme (E2)) and a second operative metabolic pathway (characterized by an enzyme activity in excess of a native level in respect of a third enzyme (E3) catalyzing a non-reversible reaction (where **NADP** is a cofactor and **NADPH** is a product) in which (M1) is transformed into (M3) without the involvement of (E2)).

An **INDEPENDENT CLAIM** is also included for a genetically transformed microorganism containing one or more copies of an heterologous **DNA** sequence encoding non-phosphorolating glyceraldehyde-3-phosphate dehydrogenase (GAPN) operatively associated with an expression signal and having a functional native or heterologous expression capability for glyceraldehyde-3-phosphate dehydrogenase (EC 1.2.1.12) (GAPDH).

**USE - Culturing** of (I) is useful to produce a desired metabolic product (preferably ethanol, lactic acid, citric acid, an amino acid or an antibiotic) with decreased production of an undesired metabolic product (preferably glycerol, acetate or an amino acid) (claimed).

**ADVANTAGE** - (I) allows the production of high yields of desired metabolic products with reduced by-products. Only one genetic change is required in the process and the activity of the enzyme only affects the specific reaction it catalyzes, so that the growth rate is not affected.

Dwg.0/2

L17 ANSWER 5 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2004-310462 [29] WPIDS  
 DOC. NO. CPI: C2004-118411  
 TITLE: **DNA** encoding asymmetric carbonyl reducing enzyme having specific physicochemical properties, useful for producing industrial optically active 2-halo-1-(substituted-3-nitrophenyl) ethanol.  
 DERWENT CLASS: B04 D16  
 PATENT ASSIGNEE(S): (ASAHI) ASAHI KASEI PHARMA KK  
 COUNTRY COUNT: 1  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 2004105089	A	20040408	(200429)*		49

**APPLICATION DETAILS:**

PATENT NO	KIND	APPLICATION	DATE
JP 2004105089	A	JP 2002-272095	20020918

PRIORITY APPLN. INFO: JP 2002-272095 20020918  
 AN 2004-310462 [29] WPIDS  
 AB JP2004105089 A UPAB: 20051014  
 NOVELTY - **DNA** (I) encoding asymmetric carbonyl reducing

enzyme (II) has physicochemical properties:

(a) (II) catalyzes the conversion of 2-halo-1-(substituted-3-nitrophenyl) ethanone to 2-halo-1-(substituted-3-nitrophenyl) ethanol;

(b) (II) acts on 2-chloro-1-(3-nitrophenyl) ethanone and acetophenone;

(c) (I) utilizes **NADPH** as coenzyme; and

(d) relative activity of (II) with respect to highest activity is 95% or more at pH 4-7.

DETAILED DESCRIPTION - **DNA** (I) encoding asymmetric carbonyl reducing enzyme (II) having the following physicochemical properties:

(a) (II) catalyzes the reaction (1);

(b) (II) acts on 2-chloro-1-(3-nitrophenyl) ethanone and acetophenone and produces (R)-2-chloro-1-(3-nitrophenyl) ethanol, (II) has asymmetric reduction activity which produces (S)-1-phenyl ethanol, and (II) does not have substantial alcohol dehydrogenation activity to on (R)-1-phenyl ethanol and 2-propanol;

(c) (I) uses **NADPH** as coenzyme and does not substantially utilize **NADH**; and

(d) the relative activity of (II) with respect to highest activity is 95 % or more at pH 4-7 and is 80 % at pH 3 and 8.

(II) encoded by (I) has a 251 amino acid sequence (S1), as given in the specification or has (S1) in which one or more amino acids are substituted, deleted or inserted, where (II) has the physicochemical properties such as (a), (b) and (c) as mentioned above. (I) consist of a sequence from 80-832 nucleotides of a 899 nucleotide sequence (S2), as given in the specification or consist of a **DNA** that can hybridize under stringent conditions with the above sequence.

R10 = hydrogen atom, halogen atom and protector hydroxyl group;

B = chlorine or bromine atom; and

1 = asymmetric carbon atom.

INDEPENDENT CLAIMS are included for the following:

(1) a recombinant vector (III) in which (I) is connected;

(2) a transformed cell (IV) produced by introducing (I) into a host cell in order to transform it;

(3) (II) having physicochemical properties such as (a), (b), (c) and (d) as mentioned above, and has (S1) or (S1) in which one or more amino acids as substituted, deleted, or inserted, where (II) is encoded by (I);

(4) producing (M1) (II), comprising:

(a) **culturing** any one of **microorganisms** belonging to *Rhodotorula* genus capable of **producing** (II); or

(b) **culturing** (IV) in a **culture** medium and collecting (II) from the **culture**; and

(5) producing (M2) compound of general formula (1), comprising contacting a compound having general formula (2) with microbial cell containing (II), oxygen containing extract of the microbial cells, (II), or (IV) in the presence of endogenous or added **NADPH** to perform asymmetric reduction to produce compound having general formula (1).

USE - (I) is useful for producing industrial optically active 2-halo-1-(substituted-3-nitrophenyl) ethanol by asymmetric reduction of 2-halo-1-(substituted-3-nitrophenyl) ethanone.

ADVANTAGE - Optically active 2-halo-1-(substituted-3-nitrophenyl) ethanol can be efficiently manufactured with optical purity of more than 99.9 % using (I).

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ACCESSION NUMBER: 2003-505292 [47] WPIDS  
 DOC. NO. CPI: C2003-135129  
 TITLE: New polypeptides derived from 6-phosphogluconate dehydrogenase of Corynebacterium glutamicum used for increasing yield in fermentative production of useful substances e.g. L-amino acids.  
 DERWENT CLASS: B05 D16 E19  
 INVENTOR(S): IKEDA, M; MITSUHASHI, S; OCHIAI, K; OHNISHI, J  
 PATENT ASSIGNEE(S): (KYOW) KYOWA HAKKO KOGYO KK; (IKED-I) IKEDA M; (MITS-I) MITSUHASHI S; (OCHI-I) OCHIAI K; (OHNI-I) OHNISHI J  
 COUNTRY COUNT: 102  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003048351	A1	20030612	(200347)*	JA	66
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SI SK SL SZ TR TZ UG ZM ZW W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW					
AU 2002349753	A1	20030617	(200419)		
EP 1462516	A1	20040929	(200463)	EN	
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
US 2005079586	A1	20050414	(200526)		
JP 2003549530	X	20050414	(200527)		45

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003048351	A1	WO 2002-JP12661	20021203
AU 2002349753	A1	AU 2002-349753	20021203
EP 1462516	A1	EP 2002-781875	20021203
		WO 2002-JP12661	20021203
US 2005079586	A1	WO 2002-JP12661	20021203
		US 2004-497502	20040603
JP 2003549530	X	WO 2002-JP12661	20021203
		JP 2003-549530	20021203

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002349753	A1 Based on	WO 2003048351
EP 1462516	A1 Based on	WO 2003048351
JP 2003549530	X Based on	WO 2003048351

PRIORITY APPLN. INFO: JP 2001-368264 20011203  
 AN 2003-505292 [47] WPIDS  
 AB WO2003048351 A UPAB: 20030723  
 NOVELTY - New polypeptides (I) have 6-phosphogluconate dehydrogenase (GND) activity and are derived from the GND of Corynebacterium glutamicum (ATCC-13032) by replacement of the proline residue at position 158 and/or the serine residue at position 361 by another

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amino acid residue. Amino acid residues may also be added, deleted and/or substituted at other positions in the sequence.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

- (1) DNA encoding (I);
- (2) Expression vectors containing the DNA;
- (3) Hosts transformed by the vectors;
- (4) Microorganisms having DNA encoding (I) incorporated into chromosome DNA;
- (5) Preparation of useful substances by culture of the transformed hosts or microorganisms.

USE - Used for more efficient fermentative production of L-amino acids (such as L-lysine, L-threonine, L-isoleucine, L-arginine, L-phenylalanine, L-tyrosine or L-tryptophan), nucleic acids, sugars and vitamins.  
Dwg.0/0

L17 ANSWER 7 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2003-289876 [28] WPIDS  
 DOC. NO. CPI: C2005-217451  
 TITLE: New culture medium comprising biosynthetic building blocks and other organic molecules, useful for growing fastidious microorganisms, or for culturing microorganisms for vaccine, antigen and metabolite production.  
 DERWENT CLASS: B04 D16  
 INVENTOR(S): BREITSCHWERDT, E B; SONTAKKE, S  
 PATENT ASSIGNEE(S): (UYNC-N) UNIV NORTH CAROLINA STATE; (BREI-I) BREITSCHWERDT E B; (SONT-I) SONTAKKE S  
 COUNTRY COUNT: 100  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003012058	A2	20030213	(200328)*	EN	28
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW					
US 2003148499	A1	20030807	(200358)		
AU 2002332438	A1	20030217	(200452)		
AU 2002332438	A8	20051020	(200615)		

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003012058	A2	WO 2002-US24329	20020731
US 2003148499	A1 Provisional	US 2001-309688P	20010802
		US 2002-208352	20020730
AU 2002332438	A1	AU 2002-332438	20020731
AU 2002332438	A8	AU 2002-332438	20020731

#### FILING DETAILS:

PATENT NO	KIND	PATENT NO

10/781499

AU 2002332438 A1 Based on WO 2003012058  
AU 2002332438 A8 Based on WO 2003012058

PRIORITY APPLN. INFO: US 2001-309688P 20010802; US  
2002-208352 20020730

AN 2003-289876 [28] WPIDS

AB WO2003012058 A UPAB: 20051117

NOVELTY - A new **culture** medium for growing a fastidious microorganism comprising biosynthetic building blocks and other organic molecules to support the growth of the fastidious microorganism in **culture**, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) **culturing** a fastidious microorganism by **culturing** a sample containing a fastidious microorganism in a **culture** medium defined above;
- (2) detecting or identifying a fastidious microorganism in a sample;
- (3) identifying a compound that binds to a microorganism;
- (4) diagnosing a mammalian subject with an infection by a fastidious microorganism; and
- (5) diagnosing a disorder in a subject.

USE - The new **culture** medium is useful for growing fastidious microorganisms, which may not be **cultured** with currently available media; growing, identifying, isolating and/or detecting microorganisms associated with disease; and **culturing** microorganisms for vaccine, antigen and metabolite production.

Dwg.0/0

L17 ANSWER 8 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2003-248018 [24] WPIDS  
CROSS REFERENCE: 2003-247821 [24]; 2003-247822 [24]; 2003-248014 [24];  
2003-256370 [25]; 2003-256371 [25]; 2003-256372 [25]  
DOC. NO. CPI: C2003-063878  
TITLE: **Preparing L-amino acids, e.g. L-threonine, by fermenting microorganisms of Enterobacteriaceae family in which the aceK gene is attenuated, in particular eliminated, and isolating L-amino acid from culture medium.**  
DERWENT CLASS: B05 D13 D16 E16  
INVENTOR(S): HERMANN, T  
PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG  
COUNTRY COUNT: 100  
PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG
WO 2003008616	A2 20030130	(200324)*	EN	37
RW:	AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS			
	LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW			
W:	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE			
	DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG			
	KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM			
	PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ			
	VN YU ZA ZM ZW			
AU 2002319280	A1 20030303	(200452)		
US 2005124047	A1 20050609	(200539)		

Searcher : Shears 571-272-2528

10/781499

AU 2002319280 A8 20051013 (200616)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003008616	A2	WO 2002-EP7353	20020703
AU 2002319280	A1	AU 2002-319280	20020703
US 2005124047	A1 Provisional	US 2001-306867P	20010723
		WO 2002-EP7353	20020703
		US 2004-483413	20040120
AU 2002319280	A8	AU 2002-319280	20020703

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002319280	A1 Based on	WO 2003008616
AU 2002319280	A8 Based on	WO 2003008616

PRIORITY APPLN. INFO: US 2001-306867P 20010723; DE  
2001-10135051 20010718

AN 2003-248018 [24] WPIDS  
CR 2003-247821 [24]; 2003-247822 [24]; 2003-248014 [24]; 2003-256370  
[25]; 2003-256371 [25]; 2003-256372 [25]

AB WO2003008616 A UPAB: 20060308  
NOVELTY - **Preparing** (M) L-amino acids involves fermenting  
**microorganisms** of Enterobacteriaceae family which  
**produce** the desired L-amino acid and in which the aceK gene  
(isocitrate dehydrogenase kinase/phosphatase gene), or nucleotide  
sequence which codes for it is attenuated, concentrating desired  
L-amino acid in the medium or in the cells of the microorganisms, and  
isolating desired L-amino acid.

DETAILED DESCRIPTION - **Preparing** (M) L-amino acids, in  
particular L-threonine, involves fermenting  
**microorganisms** of the Enterobacteriaceae family which  
**produce** the desired L-amino acid, and in which the aceK gene,  
or the nucleotide sequence which codes for it is attenuated, in  
particular eliminated, concentrating the desired L-amino acid in the  
medium or in the cells of the microorganisms, and isolating the  
desired L-amino acid, constituents of the fermentation broth, and/or  
the biomass in its entirety or its portions (greater than 0 to 100%)  
optionally remaining in the product.

USE - (M) is useful for preparing L-amino acids e.g., L-  
**threonine** (claimed). (M) is useful for the fermentative  
preparation of L-amino acids (such as L-threonine, L-  
**isoleucine**, L-valine, L-methionine, L-homoserine and  
L-lysine) which are useful in human medicine and in the  
pharmaceuticals industry, in the foodstuffs industry and very  
particularly in animal nutrition.

DESCRIPTION OF DRAWING(S) - The figure shows the plasmid pMAK705  
Delta aceK.  
Dwg.1/1

L17 ANSWER 9 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2003-256376 [25] WPIDS  
CROSS REFERENCE: 2003-239344 [23]; 2003-239345 [23]; 2003-248015 [24];  
2003-248016 [24]; 2003-248017 [24]; 2003-256373 [25];  
2003-256374 [25]; 2003-256375 [25]; 2003-256377 [25];

Searcher : Shears 571-272-2528

10/781499

DOC. NO. CPI: 2003-289779 [28]  
 TITLE: C2003-066425  
**Preparing L-amino acids, especially L-threonine, by fermenting microorganisms of Enterobacteriaceae family in which rseA, rseC genes are enhanced, preferably over-expressed and isolating amino acid from culture medium.**  
 DERWENT CLASS: B05 D16 E16  
 INVENTOR(S): RIEPING, M  
 PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG; (RIEP-I) RIEPING M  
 COUNTRY COUNT: 101  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003008612	A2	20030130	(200325)*	EN	33
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW					
EP 1407022	A2	20040414	(200426)	EN	
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
AU 2002345083	A1	20030303	(200452)		
US 2004241814	A1	20041202	(200480)		
AU 2002345083	A8	20051020	(200615)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003008612	A2	WO 2002-EP7370	20020703
EP 1407022	A2	EP 2002-743258	20020703
		WO 2002-EP7370	20020703
AU 2002345083	A1	AU 2002-345083	20020703
US 2004241814	A1	WO 2002-EP7370	20020703
		US 2004-483417	20040120
AU 2002345083	A8	AU 2002-345083	20020703

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1407022	A2 Based on	WO 2003008612
AU 2002345083	A1 Based on	WO 2003008612
AU 2002345083	A8 Based on	WO 2003008612

PRIORITY APPLN. INFO: US 2001-306869P 20010723; DE  
 2001-10135053 20010718

AN 2003-256376 [25] WPIDS  
 CR 2003-239344 [23]; 2003-239345 [23]; 2003-248015 [24]; 2003-248016 [24]; 2003-248017 [24]; 2003-256373 [25]; 2003-256374 [25]; 2003-256375 [25]; 2003-256377 [25]; 2003-289779 [28]  
 AB WO2003008612 A UPAB: 20060302  
 NOVELTY - **Preparing** (M) L-amino acids, e.g. L-

Searcher : Shears 571-272-2528

**threonine**, comprising fermenting **microorganisms** of the Enterobacteriaceae family which **produce** the desired L-amino acid and in which the rseA and rseC genes (genes of the rseABC operon coding for membrane protein with anti- approx. sE activity and global regulator of approx. sE factor, respectively), or the nucleotide sequence which codes for these, is/are enhanced, in particular over-expressed, is new.

DETAILED DESCRIPTION - (M) involves fermenting **microorganisms** of the Enterobacteriaceae family which **produce** the desired L-amino acid and in which the rseA and rseC genes, or the nucleotide sequence which codes for these, is enhanced, in particular over-expressed, concentrating the desired L-amino acid in the medium or in the cells of the microorganisms and isolating the desired L-amino acid, constituents of the fermentation broth and/or the biomass in its entirety or portions, optionally remaining in the product.

USE - (M) is useful for preparing L-amino acids, in particular L-**threonine** (claimed) and also L-isoleucine, L-valine, L-methionine, L-homoserine and L-lysine. L-amino acids, in particular L-**threonine** are used in human medicine and in pharmaceutical industry, in the foodstuffs industry and more particularly in animal nutrition.

DESCRIPTION OF DRAWING(S) - The figure shows the map of the plasmid pTrc99ArseA containing the rseA gene.  
Dwg.1/2

L17 ANSWER 10 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2003-248016 [24] WPIDS  
 CROSS REFERENCE: 2003-239344 [23]; 2003-239345 [23]; 2003-247824 [24];  
 2003-247825 [24]; 2003-248015 [24]; 2003-248017 [24];  
 2003-256373 [25]; 2003-256374 [25]; 2003-256375 [25];  
 2003-256376 [25]; 2003-256377 [25]; 2003-289779 [28]  
 DOC. NO. CPI: C2003-063876  
 TITLE: **Preparing L-amino acids, e.g. L-threonine**, by fermenting **microorganisms** of Enterobacteriaceae family in which talB gene is enhanced, preferably over-expressed, and isolating L-amino acid from the **culture medium**.  
 DERWENT CLASS: B05 D13 D16 E16  
 INVENTOR(S): RIEPING, M  
 PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG  
 COUNTRY COUNT: 100  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003008611	A2	20030130	(200324)*	EN	29
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS					
LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE					
DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG					
KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM					
PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ					
VN YU ZA ZM ZW					
AU 2002325865	A1	20030303	(200452)		
AU 2002325865	A8	20051020	(200615)		

APPLICATION DETAILS:

Searcher : Shears 571-272-2528

PATENT NO	KIND	APPLICATION	DATE
WO 2003008611	A2	WO 2002-EP7369	20020703
AU 2002325865	A1	AU 2002-325865	20020703
AU 2002325865	A8	AU 2002-325865	20020703

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002325865	A1 Based on	WO 2003008611
AU 2002325865	A8 Based on	WO 2003008611

PRIORITY APPLN. INFO: US 2001-306869P 20010723; DE 2001-10135053 20010718

AN 2003-248016 [24] WPIDS  
 CR 2003-239344 [23]; 2003-239345 [23]; 2003-247824 [24]; 2003-247825 [24]; 2003-248015 [24]; 2003-248017 [24]; 2003-256373 [25]; 2003-256374 [25]; 2003-256375 [25]; 2003-256376 [25]; 2003-256377 [25]; 2003-289779 [28]  
 AB WO2003008611 A UPAB: 20060302  
 NOVELTY - **Preparing** (M) L-amino acids involves fermenting **microorganisms** of Enterobacteriaceae family which **produce** desired L-amino acid and in which the talB gene (transaldolase B gene) or nucleotide sequence which codes for it, is enhanced, preferably over-expressed, concentrating desired L-amino acid in the medium or in cells of the microorganisms, and isolating L-amino acid.

DETAILED DESCRIPTION - **Preparing** (M) L-amino acids, in particular L-**threonine**, involves fermenting **microorganisms** of the Enterobacteriaceae family which **produce** the desired L-amino acid, and in which at least the talB gene, or the nucleotide sequence which codes for it, is enhanced, in particular over-expressed, concentrating the desired L-amino acid in the medium or in the cells of the microorganisms, and isolating the desired L-amino acid, constituents of the fermentation broth and/or the biomass in its entirety or its portions (greater than 0 to 100%) optionally remaining in the product.

USE - (M) is useful for preparing L-amino acids e.g., L-**threonine** (claimed). (M) is useful for the fermentative preparation of L-amino acids (such as L-**threonine**, L-**isoleucine**, L-valine, L-**methionine**, L-homoserine and L-**lysine**) which are useful in human medicine and in the pharmaceuticals industry, in the foodstuffs industry and very particularly in animal nutrition.

DESCRIPTION OF DRAWING(S) - The figure shows map of the plasmid pTrc99AtalB containing the talB gene.  
 Dwg.1/1

L17 ANSWER 11 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2003-239344 [23] WPIDS  
 CROSS REFERENCE: 2003-239345 [23]; 2003-247824 [24]; 2003-247825 [24]; 2003-248015 [24]; 2003-248016 [24]; 2003-248017 [24]; 2003-256373 [25]; 2003-256374 [25]; 2003-256375 [25]; 2003-256376 [25]; 2003-256377 [25]; 2003-289779 [28]  
 DOC. NO. CPI: C2003-061443  
 TITLE: **Preparing** L-amino acids, e.g. L-**threonine**, by fermenting

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**microorganisms** of Enterobacteriaceae family  
in which pfkB gene is enhanced, preferably  
over-expressed, and isolating L-amino acid from the  
**culture** medium.

DERWENT CLASS: B05 D16 E16  
INVENTOR(S): RIEPING, M  
PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG  
COUNTRY COUNT: 100  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003008610	A2	20030130	(200323)*	EN	29
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW					
AU 2002321165	A1	20030303	(200452)		
AU 2002321165	A8	20051020	(200615)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003008610	A2	WO 2002-EP7368	20020703
AU 2002321165	A1	AU 2002-321165	20020703
AU 2002321165	A8	AU 2002-321165	20020703

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002321165	A1 Based on	WO 2003008610
AU 2002321165	A8 Based on	WO 2003008610

PRIORITY APPLN. INFO: US 2001-306869P 20010723; DE  
2001-10135053 20010718

AN 2003-239344 [23] WPIDS  
CR 2003-239345 [23]; 2003-247824 [24]; 2003-247825 [24]; 2003-248015  
[24]; 2003-248016 [24]; 2003-248017 [24]; 2003-256373 [25];  
2003-256374 [25]; 2003-256375 [25]; 2003-256376 [25]; 2003-256377  
[25]; 2003-289779 [28]

AB WO2003008610 A UPAB: 20060302  
NOVELTY - **Preparing** (M) L-amino acids e.g. L-  
**threonine**, comprising fermenting **microorganisms** of  
the Enterobacteriaceae family which **produce** the desired  
L-amino acid and in which at least the pfkB gene (6-  
phosphofructokinase isoenzyme 2 gene), or the nucleotide sequence  
which codes for it, is enhanced, in particular over-expressed, is new.  
DETAILED DESCRIPTION - **Preparing** (M) L-amino acids, in particular  
L-**threonine**, comprising:  
(a) fermenting **microorganisms** of the Enterobacteriaceae  
family which **produce** the desired L-amino acid, and in which  
at least the pfkB gene, or the nucleotide sequence which codes for it,  
is enhanced, in particular over-expressed;  
(b) concentrating the desired L-amino acid in the medium or in

the cells of the microorganisms; and

(c) isolating the desired L-amino acid, constituents of the fermentation broth and/or the biomass in its entirety or its portions, optionally remaining in the product.

USE - (M) is useful for preparing L-amino acids e.g. L-threonine (claimed). (M) is useful for the fermentative preparation of L-amino acids (such as L-threonine, L-isoleucine, L-valine, L-methionine, L-homoserine and L-lysine) which are useful in human medicine and in the pharmaceuticals industry, in the foodstuffs industry and very particularly in animal nutrition.

DESCRIPTION OF DRAWING(S) - The drawing shows map of the plasmid pTrc99Apfkb containing the pfkb gene.

Dwg.1/1

L17 ANSWER 12 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2003-248015 [24] WPIDS  
 CROSS REFERENCE: 2003-239344 [23]; 2003-239345 [23]; 2003-247824 [24];  
 2003-247825 [24]; 2003-248016 [24]; 2003-248017 [24];  
 2003-256373 [25]; 2003-256374 [25]; 2003-256375 [25];  
 2003-256376 [25]; 2003-256377 [25]; 2003-289779 [28]  
 DOC. NO. CPI: C2003-063875  
 TITLE: **Preparing L-amino acids, e.g. L-threonine, by fermenting microorganisms of Enterobacteriaceae family in which phoB and/or phoR genes are enhanced, preferably over-expressed, isolating L-amino acid from culture medium.**  
 DERWENT CLASS: B05 D13 D16 E16  
 INVENTOR(S): RIEPING, M  
 PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG  
 COUNTRY COUNT: 101  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003008606	A2	20030130	(200324)*	EN	29
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW					
EP 1407026	A2	20040414	(200426)	EN	
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
AU 2002354852	A1	20030303	(200452)		
AU 2002354852	A8	20051020	(200615)		

# APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003008606	A2	WO 2002-EP7355	20020703
EP 1407026	A2	EP 2002-787110	20020703
		WO 2002-EP7355	20020703
AU 2002354852	A1	AU 2002-354852	20020703
AU 2002354852	A8	AU 2002-354852	20020703



## FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1407026	A2 Based on	WO 2003008606
AU 2002354852	A1 Based on	WO 2003008606
AU 2002354852	A8 Based on	WO 2003008606

PRIORITY APPLN. INFO: US 2001-306869P 20010723; DE  
2001-10135053 20010718

AN 2003-248015 [24] WPIDS  
CR 2003-239344 [23]; 2003-239345 [23]; 2003-247824 [24]; 2003-247825 [24]; 2003-248016 [24]; 2003-248017 [24]; 2003-256373 [25]; 2003-256374 [25]; 2003-256375 [25]; 2003-256376 [25]; 2003-256377 [25]; 2003-289779 [28]

AB WO2003008606 A UPAB: 20060302  
NOVELTY - **Preparing** (M) L-amino acids e.g., L-**threonine**, involves fermenting **microorganisms** of the Enterobacteriaceae family which **produce** the desired L-amino acid and in which one or more of the genes chosen from *phoB* (gene coding for regulatory protein of the *pho* regulon) and *phoR* (gene coding for sensor protein of the *pho* regulon), or the nucleotide sequences which code for these, is/are enhanced.

DETAILED DESCRIPTION - **Preparing** (M) L-amino acids, in particular L-**threonine**, involves fermenting **microorganisms** of the Enterobacteriaceae family which **produce** the desired L-amino acid, and in which one or more of the genes chosen from *phoB* and *phoR*, or nucleotide sequences which code for these is/are enhanced, in particular over-expressed, concentrating the desired L-amino acid in the medium or in the cells of the microorganisms, and isolating the desired L-amino acid, constituents of the fermentation broth and/or the biomass in its entirety or its portions (greater than 0 to 100%) optionally remaining in the product.

USE - (M) is useful for preparing L-amino acids e.g., L-**threonine** (claimed). (M) is useful for the fermentative preparation of L-amino acids (such as L-**threonine**, L-**isoleucine**, L-valine, L-**methionine**, L-homoserine and L-**lysine**) which are useful in human medicine and in the pharmaceuticals industry, in the foodstuffs industry and very particularly in animal nutrition.

DESCRIPTION OF DRAWING(S) - The figure shows map of the plasmid pTrc99AphoBR containing the *phoB* and *phoR* genes.  
Dwg.1/1

L17 ANSWER 13 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2003-248014 [24] WPIDS  
CROSS REFERENCE: 2003-247821 [24]; 2003-247822 [24]; 2003-248018 [24]; 2003-256370 [25]; 2003-256371 [25]; 2003-256372 [25]  
DOC. NO. CPI: C2003-063874  
TITLE: **Preparing** L-amino acids, e.g. L-**threonine**, by fermenting **microorganisms** of Enterobacteriaceae family in which the *aceB* gene is attenuated, in particular eliminated, and isolating L-amino acid from **culture** medium.  
DERWENT CLASS: B05 D13 D16 E16  
INVENTOR(S): HERMANN, T

PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG  
 COUNTRY COUNT: 100  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003008604	A2	20030130	(200324)*	EN	36
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW					
AU 2002354851	A1	20030303	(200452)		
CN 1533439	A	20040929	(200504)		
US 2005221448	A1	20051006	(200566)		
AU 2002354851	A8	20051020	(200615)		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003008604	A2	WO 2002-EP7352	20020703
AU 2002354851	A1	AU 2002-354851	20020703
CN 1533439	A	CN 2002-814498	20020703
US 2005221448	A1 Provisional	US 2001-306867P	20010723
		WO 2002-EP7352	20020703
		US 2004-483983	20040122
AU 2002354851	A8	AU 2002-354851	20020703

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002354851	A1 Based on	WO 2003008604
AU 2002354851	A8 Based on	WO 2003008604

PRIORITY APPLN. INFO: US 2001-306867P 20010723; DE  
 2001-10135051 20010718

AN 2003-248014 [24] WPIDS  
 CR 2003-247821 [24]; 2003-247822 [24]; 2003-248018 [24]; 2003-256370  
 [25]; 2003-256371 [25]; 2003-256372 [25]  
 AB WO2003008604 A UPAB: 20060302  
 NOVELTY - **Preparing** (M) L-amino acids involves fermenting  
**microorganisms** of Enterobacteriaceae family which  
**produce** the desired L-amino acid in which the aceB gene  
 (malate synthase A gene) or the nucleotide sequence which codes for it  
 is attenuated, preferably eliminated, concentrating the desired  
 L-amino acid in the medium or in cells of the microorganisms, and  
 isolating L-amino acid.

DETAILED DESCRIPTION - **Preparing** (M) L-amino acids, in  
 particular L-threonine, involves fermenting  
**microorganisms** of the Enterobacteriaceae family which  
**produce** the desired L-amino acid, and in which the aceB gene,  
 or the nucleotide sequence which codes for it is attenuated, in  
 particular eliminated, concentrating the desired L-amino acid in the  
 medium or in the cells of the microorganisms, and isolating the  
 desired L-amino acid, constituents of the fermentation broth and/or

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the biomass in its entirety or its portions (greater than 0 to 100%) optionally remaining in the product.

USE - (M) is useful for preparing L-amino acids e.g., L-threonine (claimed). (M) is useful for the fermentative preparation of L-amino acids (such as L-threonine, L-isoleucine, L-valine, L-methionine, L-homoserine and L-lysine) which are useful in human medicine and in the pharmaceuticals industry, in the foodstuffs industry and very particularly in animal nutrition.

DESCRIPTION OF DRAWING(S) - The figure shows the plasmid pMAK705 Delta aceB.  
Dwg.1/1

L17 ANSWER 14 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2003-256371 [25] WPIDS  
CROSS REFERENCE: 2003-248014 [24]; 2003-248018 [24]; 2003-256370 [25];  
2003-256372 [25]  
DOC. NO. CPI: C2003-066420  
TITLE: **Preparing** L-amino acids, in particular L-threonine, by fermenting microorganisms of Enterobacteriaceae family in which *ugpB* gene is attenuated, in particular eliminated and isolating L-amino acid from culture medium.  
DERWENT CLASS: B05 D16 E16  
INVENTOR(S): HERMANN, T  
PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG  
COUNTRY COUNT: 101  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003008602	A2	20030130	(200325)*	EN	35
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW					
EP 1407021	A2	20040414	(200426)	EN	
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
AU 2002314203	A1	20030303	(200452)		
AU 2002314203	A8	20051013	(200616)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003008602	A2	WO 2002-EP7350	20020703
EP 1407021	A2	EP 2002-740760	20020703
		WO 2002-EP7350	20020703
AU 2002314203	A1	AU 2002-314203	20020703
AU 2002314203	A8	AU 2002-314203	20020703

FILING DETAILS:

PATENT NO	KIND	PATENT NO
Searcher	:	Shears 571-272-2528

EP 1407021	A2 Based on	WO 2003008602
AU 2002314203	A1 Based on	WO 2003008602
AU 2002314203	A8 Based on	WO 2003008602

PRIORITY APPLN. INFO: US 2001-306867P 20010723; DE  
2001-10135051 20010718

AN 2003-256371 [25] WPIDS  
CR 2003-248014 [24]; 2003-248018 [24]; 2003-256370 [25]; 2003-256372 [25]  
AB WO2003008602 A UPAB: 20060308

NOVELTY - **Preparing** (M) L-amino acids, in particular L-**threonine**, comprises fermenting **microorganisms** of the Enterobacteriaceae family which **produce** the desired L-amino acid and in which the *ugpB* gene (coding for periplasmic binding protein of the sn-glycerol 3-phosphate transport system), or the nucleotide sequence which codes for this, is attenuated, concentrating the desired L-amino acid and isolating the desired L-amino acid.

DETAILED DESCRIPTION - (M) involves fermenting **microorganisms** of the Enterobacteriaceae family which **produce** the desired L-amino acid and in which the *ugpB* gene, or the nucleotide sequence which codes for this, is attenuated, in particular eliminated, concentrating the desired L-amino acid in the medium or in the cells of the microorganisms and isolating the desired L-amino acid, constituents of the fermentation broth and/or the biomass in its entirety or portions, optionally remaining in the product.

USE - (M) is useful for preparing L-amino acids, in particular L-**threonine** (claimed) and also L-**isoleucine**, L-valine, L-**methionine**, L-homoserine and L-**lysine**. L-amino acids, in particular L-**threonine** are used in human medicine and in pharmaceutical industry, in the foodstuffs industry and more particularly in animal nutrition.

DESCRIPTION OF DRAWING(S) - The figure shows the map of the plasmid pMAK705 Delta *ugpB* containing the *ugpB* gene.

L17 ANSWER 15 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2003-229411 [22] WPIDS  
DOC. NO. CPI: C2003-058966  
TITLE: Method for modifying coenzyme-dependency of  
oxidoreductase to provide novel carbonyl reductase  
variants utilizing NADH instead of **NADPH**,  
applicable e.g. in synthesis of optically-pure  
alcohols.

DERWENT CLASS: B04 D16  
INVENTOR(S): KIZAKI, N; MORIKAWA, S; NAKAI, T; YASOHARA, Y  
PATENT ASSIGNEE(S): (KANF) KANEKA CORP.; (KIZA-I) KIZAKI N; (MORI-I)  
MORIKAWA S; (NAKA-I) NAKAI T; (YASO-I) YASOHARA Y  
COUNTRY COUNT: 101  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG																
WO 2003004653	A1	20030116	(200322)*	JA	59																
RW:	AT	BE	BG	CH	CY	CZ	DE	DK	EA	EE	ES	FI	FR	GB	GH	GM	GR	IE	IT	KE	LS
	LU	MC	MW	MZ	NL	OA	PT	SD	SE	SK	SL	SZ	TR	TZ	UG	ZM	ZW				
W:	AE	AG	AL	AM	AT	AU	AZ	BA	BB	BG	BR	BY	BZ	CA	CH	CN	CO	CR	CU	CZ	DE
	DK	DM	DZ	EC	EE	ES	FI	GB	GD	GE	GH	GM	HR	HU	ID	IL	IN	IS	JP	KE	KG

10/781499

KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM  
PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ  
VN YU ZA ZM ZW  
EP 1416050 A1 20040506 (200430) EN  
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV  
MC MK NL PT RO SE SI SK TR  
KR 2004014655 A 20040214 (200439)  
AU 2002313321 A1 20030121 (200452)  
JP 2003510811 X 20041028 (200471)  
US 2004248250 A1 20041209 (200481)  
MX 2003011813 A1 20040701 (200545)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003004653	A1	WO 2002-JP6688	20020702
EP 1416050	A1	EP 2002-738904	20020702
		WO 2002-JP6688	20020702
KR 2004014655	A	KR 2004-700031	20040102
AU 2002313321	A1	AU 2002-313321	20020702
JP 2003510811	X	WO 2002-JP6688	20020702
		JP 2003-510811	20020702
US 2004248250	A1	WO 2002-JP6688	20020702
		US 2004-482697	20040624
MX 2003011813	A1	WO 2002-JP6688	20020702
		MX 2003-11813	20031217

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1416050	A1 Based on	WO 2003004653
AU 2002313321	A1 Based on	WO 2003004653
JP 2003510811	X Based on	WO 2003004653
MX 2003011813	A1 Based on	WO 2003004653

PRIORITY APPLN. INFO: JP 2002-6303 20020115; JP  
2001-200417 20010702

AN 2003-229411 [22] WPIDS

AB WO2003004653 A UPAB: 20030402

NOVELTY - A method for modifying an enzyme whereby the coenzyme-dependency of an oxidoreductase is changed by controlling the size of binding energy of the coenzyme through substitution, insertion or deletion or 1 or more amino acid residues in a pre-selected part of the oxidoreductase, or their combination.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) oxidoreductase variants thus modified;
- (2) carbonyl reductase variants in which their coenzyme-dependency is changed by the enzyme-modification method;
- (3) carbonyl reductase variants in which the parents have been modified by substitution, insertion or deletion of some amino acid residues or their combination, and having physiochemical properties of (a) using the reduced form beta -nicotinamide adenine dinucleotide as coenzyme for acting on a 4-chloroacetoacetic acid ester to give an (S)-4-chloro-3-hydroxybutyric acid ester; (b) exhibiting potent activity on a 4-chloroacetoacetic acid ester and practically not on acetoacetic acid ester, and without substantial dehydrogenase activity

on a 4-halo-3-hydroxybutyric acid ester; and (c) exhibiting potent activity when applying the reduced form beta -nicotinamide adenine dinucleotide but without substantial activity when using the reduced form beta -**nicotinamide adenine** dinucleotide **phosphate** as coenzyme;

- (4) **DNAs** encoding the enzyme variants;
- (5) plasmids containing the **DNAs**;
- (6) transformant cells which are transformed by the plasmids;
- (7) producing the carbonyl reductase variant by **culturing** and growing the transformant cells;
- (8) a process for producing an (S)-4-chloro-3-hydroxybutyric acid ester of formula (I) by reaction a 4-haloacetoacetic acid ester with the enzyme variant, or the **culture** of a **microorganism** capable of **producing** such enzyme variant or its processed material; and (I) and (II)
- (9) producing an optically-active alcohol by reacting a carbonyl compound with any of the enzyme variants and an enzyme capable of regenerating the enzyme variant-dependent coenzyme and/or its variant, followed by collecting the product; or by reacting a carbonyl compound with transformant cells which are transformed with a plasmid containing a **DNA** encoding any of the enzyme variant and a **DNA** encoding an enzyme capable of regenerating the enzyme variant-dependent coenzyme, and collecting the produced optically-active alcohol.

R1 = halo

R2 = H

R3 = (un)substituted alkyl or aryl.

USE - The method is for modifying coenzyme-dependency of oxidoreductase to provide novel carbonyl reductase variants utilizing NADH instead of **NADPH**, applicable e.g. in synthesis of optically-pure alcohols, particularly (S)-4-chloro-3-hydroxybutyric acid esters (claimed) for use as pharmaceutical intermediates.

ADVANTAGE - The enzymes obtained by converting the coenzyme-dependency from **NADPH** to NADH to enable its asymmetric reduction of carbonyl compounds.

Dwg.0/7

L17 ANSWER 16 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2004-102272 [11] WPIDS  
 DOC. NO. CPI: C2004-042074  
 TITLE: Novel heat-stable **lysine** dehydrogenase useful for measuring **lysine**, catalyzes dehydrogenation of L-**lysine** in presence of NAD and water, and has substrate specificity for L-**lysine** and S-(beta-aminoethyl)L-**cysteine**.  
 DERWENT CLASS: A96 B04 D16  
 PATENT ASSIGNEE(S): (NIRA) UNITIKA LTD  
 COUNTRY COUNT: 1  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 2003061681	A	20030304	(200411)*		12

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE

Searcher : Shears 571-272-2528

10/781499

JP 2003061681 A

JP 2001-261402

20010830

PRIORITY APPLN. INFO: JP 2001-261402 20010830.

AN 2004-102272 [11] WPIDS

AB JP2003061681 A UPAB: 20040213

NOVELTY - Heat-stable **lysine** dehydrogenase (I) which catalyzes the reaction of L-**lysine**, NAD and water to produce NADH, and has substrate specificity for L-**lysine** and S-(beta -aminoethyl)L- **cysteine** and does not react with other 19 L-amino acids, D-**lysine** and L-ornithine, is new. When NAD is used as coenzyme, the reactivity of the enzyme is 100%, and for **NADP**, the reactivity is 45 %.

DETAILED DESCRIPTION - Heat-stable **lysine** dehydrogenase (I) catalyzes the reaction of L- **lysine**, NAD and water to produce NADH, and has substrate specificity for L-**lysine** and S-( beta -aminoethyl)L-**cysteine** and does not react with other 19 L-amino acids, D-**lysine** and L-ornithine. When NAD is used as coenzyme, the reactivity of the enzyme is 100%, and for **NADP**, the reactivity is 45%. The optimum pH for oxidative deamination reaction is 10.1 and the temperature of the enzyme for oxidative deamination reaction is 70 deg. C. The activity of the enzyme is not reduced even after processing for 10 minutes at 60 deg. C, and even for 10 minutes at 65 deg. C in the presence of 5 mM L- **lysine**. The molecular weight of (I) calculated by polyacrylamide gel electrophoresis (PAGE) is 250000-260000, and the molecular weight of the subunit of (I) calculated by sodium dodecyl sulfate (SDS)-PAGE is 43000.

INDEPENDENT CLAIMS are also included for the following:

(1) producing (I);

(2) a gene (II) encoding (I) which comprises a 375 amino acid sequence (S1), given in the specification, or S1 including deletion, substitution or addition of one or more amino acids, where the gene comprises a 1158 nucleotide sequence (S2), given in the specification or S2 comprising deletion, substitution or addition of one or more bases;

(3) a recombinant vector (III) comprising (II); and

(4) a transformed host cell (IV) comprising (III).

USE - (I) is useful in quantitative assays for measuring.

**lysine**.

ADVANTAGE - (I) is stable even at 65 deg. C, and the activity of the enzyme is maintained.

Dwg.0/4

L17 ANSWER 17 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 2003-506564 [48] WPIDS

DOC. NO. CPI: C2003-135586

TITLE: Production of non-aromatic amino acids, useful e.g. in animal nutrition, comprises a fermentative process involving the **culture** and utilization of microorganisms in which activity of the CsrA gene is increased.

DERWENT CLASS: B05 D13 D16 E16

INVENTOR(S): RIEPING, M

PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG

COUNTRY COUNT: 102

PATENT INFORMATION:

PATENT NO KIND DATE WEEK LA PG

Searcher : Shears 571-272-2528

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DE 10157721      A1 20030605 (200348)*      6
WO 2003046184    A1 20030605 (200348)  EN
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS
    LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW
W:  AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE
    DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG
    KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM
    PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ
    VC VN YU ZA ZM ZW
AU 2002342763    A1 20030610 (200419)
EP 1448778       A1 20040825 (200456)  EN
R:  AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV
    MC MK NL PT RO SE SI SK TR

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## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 10157721	A1	DE 2001-10157721	20011124
WO 2003046184	A1	WO 2002-EP10792	20020926
AU 2002342763	A1	AU 2002-342763	20020926
EP 1448778	A1	EP 2002-779424	20020926
		WO 2002-EP10792	20020926

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002342763	A1 Based on	WO 2003046184
EP 1448778	A1 Based on	WO 2003046184

PRIORITY APPLN. INFO: DE 2001-10157721 20011124

AN 2003-506564 [48] WPIDS

AB DE 10157721 A UPAB: 20030729

NOVELTY - Fermentative production of non-aromatic amino acids (I), especially L-threonine, comprises culturing a (I)-producing microorganism of the family Enterobacteriaceae in which the activity of the protein encoded by the CsrA (carbon storage regulator A) gene is increased, especially by over-expression.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for microorganisms of the family Enterobacteriaceae, especially the genus Escherichia, in which activity of the protein encoded by the CsrA (carbon storage regulator A) gene is increased, especially by over-expression.

USE - Amino acids (I), especially L-threonine, are useful in human medicine, pharmaceuticals and the food industry, but particularly in animal nutrition.

ADVANTAGE - Increasing the activity of CsrA improves production of amino acids (I).  
Dwg.0/0

L17 ANSWER 18 OF 25 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation  
on STN

ACCESSION NUMBER: 2004:167249 BIOSIS

DOCUMENT NUMBER: PREV200400161544

TITLE: In vivo application of glucose-oxidase containing  
liposomes: Distribution and effect in the animal model

Searcher : Shears 571-272-2528



for chronic granulomatous disease.

AUTHOR(S): Gerber, Claudia E. [Reprint Author]; Kimpfler, Andrea; Schubert, Rolf; Bruchelt, Gernot [Reprint Author]; Niethammer, Dietrich [Reprint Author]; Dianuer, Mary C.

CORPORATE SOURCE: Dept. of Hematology and Oncology, University Children's Hospital, Tuebingen, Germany

SOURCE: Blood, (November 16 2003) Vol. 102, No. 11, pp. 49b-50b. print.

Meeting Info.: 45th Annual Meeting of the American Society of Hematology. San Diego, CA, USA. December 06-09, 2003. American Society of Hematology.

CODEN: BLOOAW. ISSN: 0006-4971.

DOCUMENT TYPE: Conference; (Meeting)

Conference; Abstract; (Meeting Abstract)

LANGUAGE: English

ENTRY DATE: Entered STN: 24 Mar 2004

Last Updated on STN: 24 Mar 2004

AB Patients with chronic granulomatous disease (CGD) often suffer from life-threatening infections since their phagocytes lack a functioning NADPH oxidase. Therefore these cells are not able to produce reactive oxygen species to kill ingested microorganisms. The aim of the project is to develop a novel form of therapy with drug encapsulated liposomes. For therapy of CGD, glucose oxidase containing liposomes (GOL, EPC:EPG:Chol, 40:30:30 mol%; EPC:egg-phosphatidylcholin, EPG:egg-phosphatidylglycerol, Chol:cholesterol) are targeted to phagocytes in order to restore their microbicidal activity. GOL are taken up by CGD phagocytes and generate H<sub>2</sub>O<sub>2</sub> inside the cells, which is then converted enzymatically to microbicidal hypochlorous acid. As recently shown, in vitro GOL-treated CGD-granulocytes killed Staph. aureus as efficiently as normal granulocytes. (Gerber et al., Blood. 2001; 98:3097-3105). In in vivo experiments with C57BL/6J mice (3H)/(14C)-labeled liposomes were mainly detected in the organs liver and spleen. These findings could be confirmed by a very sensitive non-radioactive GO-ELISA. The half life of EPC:EPG:Chol-liposomes in blood was 80 minutes investigated for 40 and 20 mM total lipid concentration (injection volume of 100 µl). After the injection of GO-liposomes (approx 0.2 U GO, 40 and 20 mM total lipid concentration) in C57BL/6J mice no methemoglobin formation was observed and in parallel no remarkable glucose decrease (<30%) could be measured in blood. Furthermore, mice showed no macroscopic necrotic lesions at the site of GOL-injection or in organs; weight and behaviour retained normal over 14 days until sacrifice. GOL related positive DHR-oxidation could be measured up to 480 minutes after GOL-injection in granulocytes and monocytes and was concentration dependent. Flow cytometric analyses in whole blood of GOL-treated mice showed an increase of CD11b/18 concomitant with an increase of CD21/35 indicating an reaction of adhesion and complement receptors on leukocytes. After intraperitoneal infection of gp91phox-/- mice (animal model for CGD) with 0.2x10<sup>8</sup> CFU of Staph. aureus, animals were treated with one intravenous dose of GOL (100 µl/40 mM EPG-GOL, 4.1 U/ml GO) on day 5 after infection. Animals were sacrificed on day 6 and bacterial culture (BC) was obtained from peritoneal lavage. In 10 of 11 treated animals the BC was reduced to <1x10<sup>3</sup> CFU/ml in contrast to only 70% in the non treated group (7/10). Abscess formation was observed mainly in the liver and the peritoneum and was not significantly different between the treated and nontreated group. Effects described in the wild-type experiments concerning the GOL-compartmentation and the complement/adhesion receptors could be

confirmed. Further experiments will refine the analyses of bacterial reduction and recruitment of GOL-positive granulocytes and monocytes under GOL-treatment in the infection model.

L17 ANSWER 19 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2002-164408 [21] WPIDS  
 DOC. NO. CPI: C2002-050762  
 TITLE: Corynebacterium-originated glucose-6-phosphate dehydrogenase, modified to improve productivity of an L-amino acid, e.g., L-lysine, by a microorganism.  
 DERWENT CLASS: B05 D16 E19  
 INVENTOR(S): ANDO, S; HASHIMOTO, S; OCHIAI, K; YOKOI, H; YONETANI, Y  
 PATENT ASSIGNEE(S): (KYOW) KYOWA HAKKO KOGYO KK; (ANDO-I) ANDO S; (HASH-I) HASHIMOTO S; (OCHI-I) OCHIAI K; (YOKO-I) YOKOI H; (YONE-I) YONETANI Y  
 COUNTRY COUNT: 96  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2001098472	A1	20011227	(200221)*	JA	49
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW					
MZ NL OA PT SD SE SL SZ TR TZ UG ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE					
DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG					
KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT					
RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW					
AU 2001074537	A	20020102	(200230)		
EP 1302537	A1	20030416	(200328)	EN	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL					
PT RO SE SI TR					
JP 2002504621	X	20030826	(200357)		
US 2004171130	A1	20040902	(200458)		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001098472	A1	WO 2001-JP5113	20010615
AU 2001074537	A	AU 2001-74537	20010615
EP 1302537	A1	EP 2001-941065	20010615
		WO 2001-JP5113	20010615
JP 2002504621	X	WO 2001-JP5113	20010615
		JP 2002-504621	20010615
US 2004171130	A1	WO 2001-JP5113	20010615
		US 2002-312007	20021223

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001074537	A Based on	WO 2001098472
EP 1302537	A1 Based on	WO 2001098472
JP 2002504621	X Based on	WO 2001098472

PRIORITY APPLN. INFO: JP 2000-185789 20000621  
 AN 2002-164408 [21] WPIDS

AB WO 200198472 A UPAB: 20020416

NOVELTY - A polypeptide, of a Corynebacterium-originated glucose-6-phosphate dehydrogenase, has the fully defined 484 amino acid sequence (S2) given in the specification, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a polypeptide based on sequence (S2) but in which the Ala at number 213 is replaced by other amino acid and has glucose-6-phosphate dehydrogenase (G6PDH) activity;

(2) a polypeptide with the fully defined 484 amino acid sequence (S12) given in the specification;

(3) a polypeptide based on sequence (S2) but with some amino acids other than Ala at number 213 deleted, substituted or added and having G6PDH activity;

(4) a polypeptide based on sequence (S12) but with some amino acids other than Ala at number 213 deleted, substituted or added and having G6PDH activity;

(5) a DNA encoding any of the polypeptides;

(6) a DNA with the fully defined 1452 base sequence (N1) given in the specification;

(7) a DNA that contains a codon-substituted base sequence encoding an amino acid other than Ala in the base sequence from numbers 637-639 encoding Ala in sequence (S2);

(8) a DNA with the fully defined 1452 base sequence (N11) given in the specification;

(9) a DNA hybridizable with a DNA having a base sequence of (N1) under stringent conditions, which contains a base sequence containing a codon-substituted base sequence encoding an amino acid other than Ala in sequence (N1) and encodes a polypeptide with G6PDH activity;

(10) a DNA hybridizable with a DNA having a base sequence of (N1) under stringent conditions, in which the base sequence contains a base at number 637 corresponding to the base for adenine in the base sequence (N1) and which encodes a polypeptide with G6PDH activity;

(11) a recombinant DNA obtained after integrating the DNA into a vector;

(12) a plasmid pCRBzwfM that can be sustained by an Escherichia coli TOP10 (FERM BP-7135);

(13) a transformant obtained by transferring the recombinant DNA or plasmid into a host cell;

(14) a process for producing the polypeptide; and

(15) a method for producing L-amino acid by using NADPH in the culture for biosynthesis before accumulation and collection of the product.

USE - The polypeptide is useful for improving the productivity of an L-amino acid, e.g., L-lysine (claimed).

ADVANTAGE - With the microbe, elevated productivity of L-amino acid is observed. 58M strain containing the modified protein produced 63.3 g/l of L-lysine, compared to the parent Number 58 at 49.7 g/l.

Dwg.0/2

L17 ANSWER 20 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2001-616482 [71] WPIDS  
 DOC. NO. CPI: C2001-184625  
 TITLE: Novel L-galactose dehydrogenase protein and  
 nucleic acid sequence encoding the protein  
 for producing genetically modified plants

10/781499

and **microorganisms** with enhanced ability to  
synthesize ascorbic acid.  
DERWENT CLASS: B03 B04 C06 D16  
INVENTOR(S): SMIRNOFF, N; WHEELER, G  
PATENT ASSIGNEE(S): (ASCO-N) ASCORBEX LTD; (SMIR-I) SMIRNOFF N; (WHEE-I)  
WHEELER G  
COUNTRY COUNT: 95  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2001072974	A2	20011004	(200171)*	EN	58
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW					
AU 2001042625	A	20011008	(200208)		
US 2004053235	A1	20040318	(200421)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001072974	A2	WO 2001-GB1412	20010329
AU 2001042625	A	AU 2001-42625	20010329
US 2004053235	A1	WO 2001-GB1412	20010329
		US 2003-240136	20030312

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001042625	A Based on	WO 2001072974

PRIORITY APPLN. INFO: GB 2000-7651 20000329

AN 2001-616482 [71] WPIDS

AB WO 200172974 A UPAB: 20011203

NOVELTY - An isolated protein (I) having L-galactose dehydrogenase (L-galDH) biological activity, comprising a 319 residue amino acid sequence, fully defined in the specification or its homolog having 40 % identity to (S1), is new.

DETAILED DESCRIPTION - An isolated protein (I) having L-galactose dehydrogenase (L-galDH) biological activity, comprising a 319 residue amino acid sequence, fully defined in the specification or its homolog having 40 % identity to (S1), is new. (I) comprises the sequence (S1) (or its 40 % identical sequence) or the amino acid sequence AlaGluLeuArgGluLeuGlyArgThrGlyLeuLysLeuGlyLeuValGlyPheGly.

INDEPENDENT CLAIMS are also included for the following:

- (1) a recombinant **nucleic acid** molecule (II) comprising an expression vector operatively linked to a **nucleic acid** molecule comprising a **nucleic acid** sequence encoding (I);
- (2) an isolated **nucleic acid** molecule (III) comprising a **nucleic acid** sequence encoding (I);
- (3) producing (I), comprising **culturing** an isolated cell that has been genetically modified to express (II) under conditions where the protein encoded by (II) is expressed by the cell
- (4) a plant (IV) which has a genetic modification to increase the

Searcher : Shears 571-272-2528

action of L-galDH; and

(5) a **microorganism** (V) for **producing** ascorbic acid or its esters, having a genetic modification to increase the action of L-galDH.

USE - (IV) and (V) are useful for producing ascorbic acid or its esters (claimed). (I) is useful for producing antibodies against L-galDH proteins for use in purification and/or identification of (I). (II) is useful for generating transgenic organisms with enhanced ability to synthesize ascorbic acid. The sequences of (I) and (II) facilitate the production of a plant that has been genetically modified to express a mutated L-galDH protein which is resistant to herbicides that act against the naturally occurring L-galDH and to identify and/or design compounds that are inhibitors of L-galDH. The compounds can be used, for e.g. in a herbicide which acts on L-galDH and damages or kills plants that express the enzyme.  
Dwg.0/6

L17 ANSWER 21 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2000-414601 [36] WPIDS  
 DOC. NO. CPI: C2000-125802  
 TITLE: New carbonyl reductase reduces 4-haloacetoacetate ester to produce (S)-4-halo-3-hydroxybutyrate ester, using reduced beta-nicotinamide adenine dinucleotide as an electron donor.  
 DERWENT CLASS: B04 B05 D16  
 INVENTOR(S): KIMOTO, N; MITSUHASHI, K; YAMAMOTO, H  
 PATENT ASSIGNEE(S): (DAIL) DAICEL CHEM IND LTD; (DAIL) DAICEL CORP IND LTD  
 COUNTRY COUNT: 27  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 1013758	A2	20000628	(200036)*	EN	37
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
JP 2000236883	A	20000905	(200047)		28
US 6312933	B1	20011106	(200170)		
US 2002042110	A1	20020411	(200227)		
US 6416986	B1	20020709	(200253)		
US 2002127679	A1	20020912	(200262)		
US 6485948	B2	20021126	(200281)		
US 2004197773	A1	20041007	(200466)		
US 6969600	B2	20051129	(200578)		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1013758	A2	EP 1999-125572	19991221
JP 2000236883	A	JP 1999-171160	19990617
US 6312933	B1	US 1999-468738	19991221
US 2002042110	A1 Div ex	US 1999-468738	19991221
		US 2001-940019	20010827
US 6416986	B1 Div ex	US 1999-468738	19991221
		US 2001-940019	20010827
US 2002127679	A1 Div ex	US 1999-468738	19991221
		US 2001-940037	20010827
US 6485948	B2 Div ex	US 1999-468738	19991221

Searcher : Shears 571-272-2528

10/781499

US 2004197773	A1 Div ex	US 2001-940037	20010827
		US 1999-468738	19991221
		US 2001-855309	20010514
US 6969600	B2 Div ex	US 1999-468738	19991221
		US 2001-855309	20010514

FILING DETAILS:

PATENT NO	KIND	PATENT NO
US 2002042110	A1 Div ex	US 6312933
US 6416986	B1 Div ex	US 6312933
US 2002127679	A1 Div ex	US 6312933
US 6485948	B2 Div ex	US 6312933
US 2004197773	A1 Div ex	US 6312933
US 6969600	B2 Div ex	US 6312933

PRIORITY APPLN. INFO: JP 1999-171160 19990617; JP  
1998-363130 19981221

AN 2000-414601 [36] WPIDS  
AB EP 1013758 A UPAB: 20000801

NOVELTY - New carbonyl reductase reduces 4-haloacetoacetate ester to produce (S)-4-halo-3-hydroxybutyrate ester, using reduced beta-nicotinamide adenine dinucleotide as an electron donor.

DETAILED DESCRIPTION - New carbonyl reductase (I) has the following physicochemical properties:

- (a) can reduce 4-haloacetoacetate ester to produce (S)-4-halo-3-hydroxybutyrate ester using reduced beta -nicotinamide adenine dinucleotide as an electron donor;
- (b) a high reductase activity for 4-chloroacetoacetate ester but does not substantially dehydrogenate any optical isomers of 4-halo-3-hydroxybutyrate ester; and
- (c) shows a higher enzymatic activity when used with reduced beta -nicotinamide adenine dinucleotide phosphate.

INDEPENDENT CLAIMS are also included for:

- (1) a polypeptide (II) comprising a 292 amino acid sequence and having enzymatic activity for catalyzing the reduction of 4-haloacetoacetate ester to (S)-4-3-halo-3-hydroxybutyrate ester using reduced beta -nicotinamide adenine dinucleotide as an electron donor;
- (2) a **nucleic acid** (III) encoding (II);
- (3) a recombinant vector (IV) comprising (III);
- (4) a transformant (V) carrying (IV);
- (5) **preparation of (II), comprising culturing a microorganism** belonging to the genus *Kluyveromyces*, and **producing** the carbonyl reductase (I) or the polypeptide (II);
- (6) **producing** an alcohol, comprising reacting a ketone with (I), (II), or **microorganisms producing them**;
- (7) a kit comprising (I), (II), (III), (IV) or (V).

USE - (I) is useful for producing hydroxy compounds, particularly (S)-4-halo-3-hydroxybutyrate ester, which is a useful drug intermediate.

ADVANTAGE - The reductase has excellent stereoselectivity producing optically active (S)-4-halo-3-hydroxybutyrate ester with high optical purity and in high yield.  
Dwg.0/9

L17 ANSWER 22 OF 25 SCISEARCH COPYRIGHT (c) 2006 The Thomson Corporation  
on STN

Searcher : Shears 571-272-2528

10/781499

ACCESSION NUMBER: 1999:36039 SCISEARCH  
THE GENUINE ARTICLE: 154NH  
TITLE: Microaerobic **lysine** fermentations and  
metabolic flux analysis  
AUTHOR: Hua Q; Fu P C; Yang C; Shimizu K (Reprint)  
CORPORATE SOURCE: Kyushu Inst Technol, Dept Biochem Engn & Sci, Iizuka,  
Fukuoka 820, Japan (Reprint)  
COUNTRY OF AUTHOR: Japan  
SOURCE: BIOCHEMICAL ENGINEERING JOURNAL, (NOV 1998) Vol. 2,  
No. 2, pp. 89-100.  
ISSN: 1369-703X.  
PUBLISHER: ELSEVIER SCIENCE SA, PO BOX 564, 1001 LAUSANNE,  
SWITZERLAND.  
DOCUMENT TYPE: Article; Journal  
LANGUAGE: English  
REFERENCE COUNT: 25  
ENTRY DATE: Entered STN: 1999  
Last Updated on STN: 1999

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB Oxygen supply is known to have an important influence on  
microaerobic production of amino acids, and several researches have  
shown that the behavior of many **L-lysine-producing**  
**microorganisms** under various aeration conditions are  
different. In order to investigate the fermentative behavior under  
microaerobic condition using *Corynebacterium glutamicum* ATCC 21253,  
several experiments were carried out where dissolved oxygen  
concentration was controlled at either 1% or 5%, as well as fully  
aerated condition. The calculation of intracellular metabolic fluxes  
was made to illustrate two kinds of metabolic characteristics observed  
in microaerobic **cultures**. Evaluated flux distributions  
indicated that the activities of TCA cycle enzymes decreased with the  
decrease in oxygen supply, resulting in the amplified phosphoenol  
pyruvate (PEP) carboxylation which contributed to the 30% of increase  
in **lysine** yield for the microaerobic **culture** at 5%  
DO concentration as compared with the case of aerobic fermentation.  
Further analysis indicates that **NADPH** may not be the  
yield-limiting factor, while low split-ratio of PEP carboxylation at  
PEP or aspartate branch at oxaloacetate is considered to limit  
**lysine** production under microaerobic conditions. (C) 1998  
Elsevier Science S.A. All rights reserved.

L17 ANSWER 23 OF 25 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 1985-212559 [35] WPIDS  
DOC. NO. CPI: C1985-092399  
TITLE: **Culture of nucleic acid related**  
**substance-producing microorganisms**  
- with irradiation of light of wavelength more than  
280 nm.  
DERWENT CLASS: B04 D16  
PATENT ASSIGNEE(S): (NICA) NIPPON CARBIDE KOGYO KK  
COUNTRY COUNT: 1  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 60133880	A	19850717	(198535)*		9
JP 04029346	B	19920518	(199224)		12

APPLICATION DETAILS:

Searcher : Shears 571-272-2528

10/781499

PATENT NO	KIND	APPLICATION	DATE
JP 60133880	A	JP 1983-239676	19831221
JP 04029346	B	JP 1983-239676	19831221

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 04029346	B Based on	JP 60133880

PRIORITY APPLN. INFO: JP 1983-239676 19831221

AN 1985-212559 [35] WPIDS

AB JP 60133880 A UPAB: 19930925

The microorganisms are **cultured** in a medium under irradiation of a light source containing a light of a wavelength of 280nm or more. The light to be irradiated may be any artificial and/or natural light having a wavelength of 280-800 (280-700) nm. The irradiation strength of the light is pref. 100,000-1 microW/cm2. Examples of **nucleic acid**-related substances are inosine, 5'-inosinic acid, guanosine, 5'-guanylic acid, 5'-adenosine triphosphate, FAD, **NADP**, cytidine diphosphate choline and orotidine. The light irradiation is pref. initiated during the logarithmic growth phase of the microorganisms:

ADVANTAGE - Productivity of a **nucleic acid**-related substance may be improved.

0/0

L17 ANSWER 24 OF 25 MEDLINE on STN

ACCESSION NUMBER: 72022121 MEDLINE

DOCUMENT NUMBER: PubMed ID: 4398752

TITLE: Nicotinamide dinucleotides in **microorganisms producing** peptide and macrolide antibiotics.

AUTHOR: Raczynska-Bojanowska K; Gaworowska-Michalik J; Midak B

SOURCE: Acta biochimica Polonica, (1971) Vol. 18, No. 2, pp. 199-207.

Journal code: 14520300R. ISSN: 0001-527X.

PUB. COUNTRY: Poland

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 197112

ENTRY DATE: Entered STN: 19900310

Last Updated on STN: 19980206

Entered Medline: 19711221

L17 ANSWER 25 OF 25 MEDLINE on STN

ACCESSION NUMBER: 71266027 MEDLINE

DOCUMENT NUMBER: PubMed ID: 4397940

TITLE: **NADPH**-regenerating systems in **microorganisms producing** macrolide antibiotics.

AUTHOR: Roszkowski J; Ruczaj Z; Sawnor-Korszynska D; Kotiuszko D; Morawska H; Siejko D; Raczynska-Bojanowska K

SOURCE: Acta microbiologica Polonica. Series B: Microbiologia applicata, (1971) Vol. 3, No. 2, pp. 97-106.

Journal code: 7610361. ISSN: 0567-7823.

PUB. COUNTRY: Poland

Searcher : Shears 571-272-2528



10/781499

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 197110  
ENTRY DATE: Entered STN: 19900101  
Last Updated on STN: 19980206  
Entered Medline: 19711014

FILE 'HCAPLUS' ENTERED AT 11:44:28 ON 16 MAR 2006

L1 2 SEA FILE=REGISTRY ABB=ON PLU=ON METHIONINE/CN  
L2 2 SEA FILE=REGISTRY ABB=ON PLU=ON CYSTEINE/CN  
L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON CYSTEIN/CN  
L4 6 SEA FILE=REGISTRY ABB=ON PLU=ON (THREONINE OR LYSINE OR  
ISOLEUCINE)/CN  
L5 10 SEA FILE=REGISTRY ABB=ON PLU=ON L1 OR L2 OR L3 OR L4  
L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON NADPH/CN  
L7 1 SEA FILE=REGISTRY ABB=ON PLU=ON NADP/CN  
L8 2 SEA FILE=REGISTRY ABB=ON PLU=ON L6 OR L7  
L12 16860 SEA FILE=HCAPLUS ABB=ON PLU=ON (MICROORGANISM OR MICRO  
ORGANISM) (10A) (PREP? OR PRODUCE# OR PRODUCING OR PROD# OR  
MANUF?)  
L18 2213 SEA FILE=HCAPLUS ABB=ON PLU=ON L12(L) (L5 OR METHIONINE  
OR CYSTEIN# OR THREONINE OR LYSINE OR ISOLEUCINE OR ISO  
LEUCINE OR SUGAR OR CARBOHYDRATE OR NUCLEIC OR DNA OR  
DEOXYRIBONUCLEIC OR DEOXY RIBONUCLEIC OR LIPID OR LYS OR  
MET OR CYS OR THR OR LYS OR ILE)  
L19 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L18(L) (L8 OR NADPH OR  
NADP OR (COENZYME OR CO ENZYME) (W) (II OR 2) OR NICOTINAMIDE  
ADENINE(2W)PHOSPHATE OR (TRIPHOSPHOPYRIDINE OR TRI(W) (PHOS  
PHOPYRIDINE OR PHOSPHO PYRIDINE) OR TRIPHOSPHO PYRIDINE) (W)  
NUCLEOTIDE)  
L20 13 L19 NOT L15

L20 ANSWER 1 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 08 Sep 2005

ACCESSION NUMBER: 2005:979740 HCAPLUS

DOCUMENT NUMBER: 143:281659

TITLE: An anhydrofructose reductase from Sinorhizobium  
and the gene encoding and use of the enzyme in the  
diagnosis and therapy of disorders of sugar  
metabolism

INVENTOR(S): Giffhorn, Friedrich; Kuehn, Annette

PATENT ASSIGNEE(S): Universitaet des Saarlandes, Germany

SOURCE: PCT Int. Appl., 59 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005083066	A2	20050909	WO 2005-EP2102	20050228
WO 2005083066	A3	20051124		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,

Searcher : Shears 571-272-2528

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MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,  
UZ, VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC,  
NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 102004010131 A1 20050915 DE 2004-102004010131 20040227  
PRIORITY APPLN. INFO.: DE 2004-102004010131A 20040227

AB An anhydrofructose reductase, which catalyzes the reduction of 1,5-anhydro-D-fructose to anhydromannitol, is identified in *Sinorhizobium* and the gene encoding it is cloned. The enzyme may be useful in the diagnosis of diseases associated with abnormal blood **sugar** levels or in the manufacture of anhydrosugars for the treatment of disease such as diabetes mellitus. Antibodies to the enzyme may be used in the diagnosis of blood-sugar disorders. A **microorganism producing the enzyme** was identified by screening of soil samples. The best producer was identified as a strain of *Sinorhizobium morelense*. The enzyme was purified 75-fold (8% yield) by ion-exchange, size exclusion, and dye affinity chromatog. It is a monomer of 34850 dalton with an isoelec. point of 4.5. The enzyme had a Km of 6.4 mM for 1,5-anhydro-D-fructose and 0.2 mM **NADPH** and a pH optimum in the range 6.0-8.0.

L20 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 19 Aug 2005

ACCESSION NUMBER: 2005:823809 HCAPLUS

DOCUMENT NUMBER: 143:228043

TITLE: Preparation of amino acids with Coryneform bacteria overexpressing NADPH-resistant glucose 6-phosphate dehydrogenase

INVENTOR(S): Hans, Stephan; Bathe, Brigitte; Reth, Alexander; Thierbach, Georg; Reynen, Caroline; Moeckel, Bettina

PATENT ASSIGNEE(S): Degussa A.-G., Germany

SOURCE: PCT Int. Appl., 205 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005075631	A1	20050818	WO 2004-EP775	20040129
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,			

Searcher : Shears 571-272-2528

10/781499

MR, NE, SN, TD, TG  
PRIORITY APPLN. INFO.:

WO 2004-EP775

20040129

AB The invention relates to a process for the preparation of L-amino acids by fermentation of coryneform bacteria, which comprises carrying out the following steps: (a) fermenting the L-amino acid-producing bacteria in which at least the zwf gene is amplified, (b) concentrating the L-amino acid in the medium or in the cells of the bacteria and (c) isolating the L-amino acid produced. Thus, the zwf gene encoding glucose 6-phosphate dehydrogenase was cloned and sequenced. Mutants with decreased sensitivity to NADPH, e.g., A243T, M242S, etc. were prepared. **Lysine**-producing *Corynebacterium glutamicum* mutants expressing the mutant zwf genes produced more **lysine** than the parent microorganism. **Lysine**-producing *C. glutamicum* mutants with inactivated *pgi* or *poxB* genes (encoding glucose 6-phosphate isomerase or pyruvate oxidase, resp.) were also constructed and shown to produce more **lysine**.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT.

L20 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 01 Jul 2005

ACCESSION NUMBER: 2005:570999 HCAPLUS

DOCUMENT NUMBER: 143:95915

TITLE: Lysine production in *Corynebacterium glutamicum* by altering metabolic flux by fructose-1,6-bisphosphatase in the pentose phosphate pathway  
INVENTOR(S): Zelder, Oskar; Klopprogge, Corinna; Schroeder, Hartwig; Haefner, Stefan; Kroeger, Burkhard; Kiefer, Patrick; Heinzle, Elmar; Wittmann, Christoph

PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 93 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005059139	A2	20050630	WO 2004-IB4429	20041217
WO 2005059139	A3	20050811		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.:

WO 2003-IB6456

A 20031218

Searcher : Shears 571-272-2528

AB The present invention features methods of increasing the **prodn** of a fine chemical, e.g., **lysine**, from a **microorganism** by deregulating an enzyme-encoding gene. In a preferred embodiment, the invention provides methods of increasing the production of **lysine** in *Corynebacterium glutamicum* by way of increasing the expression of fructose-1,6-bisphosphatase activity. The invention also provides a novel process for the production of **lysine** by way of regulating carbon flux towards oxaloacetate (OAA). Intracellular flux distributions for **lysine**-producing *C. glutamicum* on glucose and fructose reveal tremendous differences. On fructose, the flux into the pentose phosphate pathway is reduced to 14.4%, mainly due to the unfavorable combination of the entry of fructose at the level of fructose-1,6-bisphosphate and the inactivity of fructose-1,6-bisphosphatase. Flux patterns suggest several potential targets for optimization of **lysine** production by *C. glutamicum* on fructose, including fructose-1,6-bisphosphatase as one target for increasing the supply of **NADPH**. Plasmid constructs expressing fructose-1,6-bisphosphatase improve the production of **lysine** utilizing fructose or sucrose as a carbon source.

L20 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 16 May 2005

ACCESSION NUMBER: 2005:413130 HCAPLUS

DOCUMENT NUMBER: 143:400632

TITLE: Cloning, expression, purification, and analysis of mannitol dehydrogenase gene *mtlK* from *Lactobacillus brevis*

AUTHOR(S): Liu, Siqing; Saha, Badal; Cotta, Michael

CORPORATE SOURCE: Fermentation Biotechnology Research Unit, National Center for Agriculture Utilization Research, USDA, ARS, Peoria, IL, 61604, USA

SOURCE: Applied Biochemistry and Biotechnology (2005), 121-124, 391-401

CODEN: ABIBDL; ISSN: 0273-2289

PUBLISHER: Humana Press Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The com. production of mannitol involves high-pressure hydrogenation of fructose using a nickel catalyst, a costly process. Mannitol can be **produced** through fermentation by **microorganisms**. Currently, a few *Lactobacillus* strains are used to develop an efficient process for mannitol bioprodn.; most of the strains produce mannitol from fructose with other products. An approach toward improving this process would be to genetically engineer *Lactobacillus* strains to increase fructose-to-mannitol conversion with decreased production of other products. We cloned the gene *mtlK* encoding mannitol-2-dehydrogenase (EC 1.1.1.67) that catalyzes the conversion of fructose into mannitol from *Lactobacillus brevis* using genomic polymerase chain reaction. The *mtlK* clone contains 1328 bp of **DNA** sequence including a 1002-bp open reading frame that consisted of 333 amino acids with a predicted mol. mass of about 36 kDa. The functional mannitol-2-dehydrogenase was produced by overexpressing *mtlK* via pRSETa vector in *Escherichia coli* BL21pLysS on isopropyl- $\beta$ -D-thiogalactopyranoside induction. The fusion protein is able to catalyze the reduction of fructose to mannitol at pH 5.35. Similar rates of catalytic reduction were observed using either the NADH or **NADPH** as cofactor under in vitro assay conditions. Genetically engineered *Lactobacillus plantarum* TF103 carrying the *mtlK* gene of *L. brevis* indicated increased mannitol production from glucose.

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The evaluation of mixed **sugar** fermentation and mannitol production by this strain is in progress.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 13 Dec 2004

ACCESSION NUMBER: 2004:1067286 HCAPLUS

DOCUMENT NUMBER: 142:260005

TITLE: Fatty acid biosynthesis in microorganisms being used for Single Cell Oil production

AUTHOR(S): Ratledge, Colin

CORPORATE SOURCE: Department of Biological Sciences, University of Hull, Hull, HU6 7RX, UK

SOURCE: Biochimie (2004), 86(11), 807-815

CODEN: BICMBE; ISSN: 0300-9084

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review. Single cell oils (SCOs) are now **produced** by various **microorganisms** as com. sources of arachidonic acid (ARA) and docosahexaenoic acid (DHA). These oils are now used extensively as dietary supplements in infant formulas. An understanding of the underlying biochem. and genetics of oil accumulation in such microorganisms is therefore essential if **lipid** yields are to be improved. Also an understanding of the biosynthetic pathways involved in the production of these polyunsatd. fatty acids (PUFAs) is also highly desirable as a prerequisite to increasing their content in the oils. An account is provided of the biosynthetic machinery that is necessary to achieve oil accumulation in an oleaginous species where it can account for **lipid** build up in excess of 70% of the cell biomass. While PUFA **production** in most **microorganisms** uses a conventional fatty acid synthase (FAS) system followed by a series of desaturases and elongases, in Schizochytrium sp., and probably related thraustochytrid marine protists, PUFA synthesis now appears to be via a polyketide synthase (PKS) route. This route is discussed. It clearly represents a major departure from conventional fatty acid biosynthesis, possibly as a means of decreasing the amount of **NADPH** that is needed in the overall process.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 20 Oct 2004

ACCESSION NUMBER: 2004:866720 HCAPLUS

DOCUMENT NUMBER: 142:112546

TITLE: Metabolic network analysis on Phaffia rhodozyma yeast using 13C-labeled glucose and gas chromatography-mass spectrometry

AUTHOR(S): Cannizzaro, Christopher; Christensen, Bjarke;

Nielsen, Jens; von Stockar, Urs

CORPORATE SOURCE: Laboratory of Chemical and Biochemical Engineering, Swiss Federal Institute of Technology, Lausanne, CH-1015, Switz.

SOURCE: Metabolic Engineering (2004), 6(4), 340-351

CODEN: MEENFM; ISSN: 1096-7176

PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Carotenoid **production** by **microorganisms**, as opposed to chemical synthesis, could fulfill an ever-increasing demand for 'all natural' products. The yeast *Phaffia rhodozyma* has received considerable attention because it produces the red pigment astaxanthin, commonly used as an animal feed supplement. In order to have a better understanding of its metabolism, labeling expts. with [1-13C]glucose were conducted with the wildtype strain (CBS5905 T) and a hyper-producing carotenoid strain (J4-3) in order to determine their metabolic network structure and estimate intracellular fluxes. Amino acid labeling patterns, as determined by GC-MS, were in accordance with a metabolic network consisting of the Embden-Meyerhof-Parnas pathway, the pentose phosphate pathway, and the TCA cycle. Glucose was mainly consumed along the pentose phosphate pathway (.apprx.65% for wildtype strain), which reflected high **NADPH** requirements for **lipid** biosynthesis. Although common to other oleaginous yeast, there was no, or very little, malic enzyme activity for carbon-limited growth. In addition, there was no evidence of phosphoketolase activity. The central carbon metabolism of the mutant strain was similar to that of the wildtype strain, though the relative pentose phosphate flux was lower and the TCA cycle flux in accordance with the biomass yield being lower.

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 28 Jan 2002

ACCESSION NUMBER: 2002:73786 HCAPLUS

DOCUMENT NUMBER: 136:305870

TITLE: Overproduction, Purification, and Characterization of Recombinant Aspartate Semialdehyde Dehydrogenase from *Arabidopsis thaliana*  
AUTHOR(S): Paris, Stephane; Wessel, Peter M.; Dumas, Renaud  
CORPORATE SOURCE: UMR 1932, Unite Mixte CNRS/INRA/Aventis

SOURCE: CropScience, Lyon, 69263, Fr.  
Protein Expression and Purification (2002), 24(1), 99-104

CODEN: PEXPEJ; ISSN: 1046-5928

PUBLISHER: Academic Press

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In plant and **microorganisms**, aspartate semialdehyde dehydrogenase (ASDH) **produces** the branch point intermediate between the **lysine** and **threonine/methionine** pathways. In this study, we report the first cDNA cloning, purification, and characterization of a plant ASDH. The *Arabidopsis thaliana* ASDH is an homodimeric enzyme composed of subunits of 36 kDa. The plant enzyme exhibited a specific activity of 26  $\mu\text{mol NADPH}$  oxidized  $\text{min}^{-1} \text{mg}^{-1}$  of protein with a  $K_m$  value for **NADPH** of 92  $\mu\text{M}$ . ASDH showed cooperative behavior for aspartyl phosphate with a  $K_{0.5}$  value of 37  $\mu\text{M}$ . (c)  
2002 Academic Press.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L20 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 05 Oct 2001

ACCESSION NUMBER: 2001:728936 HCAPLUS

DOCUMENT NUMBER: 136:17815

TITLE: In vitro reconstitution of the myxochelin biosynthetic machinery of *Stigmatella aurantiaca* Sg a15: biochemical characterization of a reductive release mechanism from nonribosomal peptide synthetases

AUTHOR(S): Gaitatzis, Nikolaos; Kunze, Brigitte; Muller, Rolf  
CORPORATE SOURCE: Gesellschaft fur Biotechnologische

SOURCE: Forschung-German Research Centre for Biotechnology, Braunschweig, 38124, Germany  
Proceedings of the National Academy of Sciences of the United States of America (2001), 98(20), 11136-11141

CODEN: PNASA6; ISSN: 0027-8424

PUBLISHER: National Academy of Sciences

DOCUMENT TYPE: Journal

LANGUAGE: English

AB **Microorganisms produce iron-chelating compds.** to sequester the iron essential for growth from the environment. Many of these compds. are biosynthesized by nonribosomal peptide synthetases, some in cooperation with polyketide synthases. Myxochelins are produced by the myxobacterium *S. aurantiaca* Sg a15, and the corresponding gene cluster was cloned recently. We have undertaken to express heterologously the myxochelin biosynthetic machinery in *Escherichia coli*. To activate the involved proteins posttranslationally, they were coexpressed with the phosphopantetheinyltransferase MtaA from the myxothiazol biosynthetic gene cluster. Phosphopantetheinylation of the carrier proteins could be verified by protein mass anal. Six active domains in proteins MxcE, MxcF, and MxcG are capable of assembling myxochelin from ATP, NAD(P)H, **lysine**, and 2,3-dihydroxybenzoic acid in vitro. This fact demonstrates that the condensation domain of MxcG performs 2 condensation reactions, creating the aryl-capped  $\alpha$ -amide and the aryl-capped  $\gamma$ -amide of the mol. A previously unknown type of reductive release is performed by the reduction domain of MxcG, which alternatively uses **NADPH** and NADH to set free the peptidyl-carrier protein-bound thioester as an aldehyde and further reduces it to the alc. structure that can be found in myxochelin A. This type of reductive release seems to be a general mechanism in polyketide and nonribosomal peptide biosynthesis, because several systems with C-terminal similarity to the reductase domain of MxcG can be found in the data bases. Alternatively, the aldehyde can be transaminated, giving rise to a terminal amine.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 27 Jul 2001

ACCESSION NUMBER: 2001:545704 HCAPLUS

DOCUMENT NUMBER: 135:136473

TITLE: Manufacture of five-carbon sugars and sugar alcohols using microorganisms deficient in or transformed with genes involved in pentose-phosphate pathway

INVENTOR(S): Miasnikov, Andrei; Ojamo, Heikki; Povelainen,

Mira; Gros, Hakan; Toivari, Mervi; Richard, Peter;  
 Ruohonen, Laura; Koivuranta, Kari; Londesborough,  
 John; Aristidou, Aristos; Penttilae, Merja;  
 Plazanet-Menut, Claire; Deutscher, Josef  
 PATENT ASSIGNEE(S): Xyrofin Oy, Finland  
 SOURCE: PCT Int. Appl., 205 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001053306	A2	20010726	WO 2001-FI51	20010122
WO 2001053306	A3	20020418		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, VZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
CA 2398237	AA	20010726	CA 2001-2398237	20010122
AU 2001031784	A5	20010731	AU 2001-31784	20010122
BR 2001007918	A	20021105	BR 2001-7918	20010122
EP 1254244	A2	20021106	EP 2001-903815	20010122
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
JP 2003520583	T2	20030708	JP 2001-553780	20010122
US 2003068791	A1	20030410	US 2001-908744	20010720
PRIORITY APPLN. INFO.:			US 2000-488581	A 20000121

US 1992-973325	B2 19921105
US 1993-110672	B1 19930824
US 1995-368395	A1 19950103
US 1997-790585	A2 19970129
WO 2001-FI51	W 20010122

AB The invention relates to the methods of manufacturing five-carbon sugars and sugar alcs. as well as other compds. derived from pentose-phosphate pathway (PPP) from readily available substrates such as hexoses using metabolically engineered microbial hosts. A series of the genes involved in the PPP are cloned from various microorganisms or disrupted in the host of either *Bacillus subtilis* or *Saccharomyces cerevisiae*. This strategy is demonstrated to successfully increase the yield of a variety of the five-carbon sugar or sugar alcs. for manufacturing purpose.

IT 53-57-6, NADPH 53-59-8, NADP  
 RL: BPR (Biological process); BSU (Biological study, unclassified);  
 BIOL (Biological study); PROC (Process)  
 (manufacture of five-carbon sugars and sugar



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alcs. using **microorganisms** deficient in or transformed  
with genes involved in pentose-phosphate pathway)

L20 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 01 Mar 2000

ACCESSION NUMBER: 2000:138169 HCAPLUS

DOCUMENT NUMBER: 132:234146

TITLE: Relevance and isotopic assessment of  
hexose-6-phosphate recycling in microorganisms

AUTHOR(S): Portais, Jean-Charles; Tavernier, Patricia;  
Gosselin, Isabelle; Barbotin, Jean-Noel

CORPORATE SOURCE: Laboratoire de Genie Cellulaire, UPRESA-CNRS 6022,  
Faculte des Sciences, Universite de Picardie Jules  
Verne, Amiens, F-80039, Fr.

SOURCE: Journal of Biotechnology (2000), 77(1), 49-64  
CODEN: JBITD4; ISSN: 0168-1656

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Some pathways of hexose-6-phosphate recycling, those involving a  
breakdown of the hexose skeleton, through **carbohydrate**  
metabolism of microorganisms were analyzed for both metabolic and isotopic  
effects. Two modes of recycling were proposed based on the degree of  
alteration of the hexose mol. through the catabolic part of the cycle.  
Simulated operation of most of these pathways resulted in increased  
synthesis of hexose-6-phosphate and **NADPH**, and reduced the  
NADH and moreover the ATP synthesis within the **carbohydrate**  
metabolism A basic model for the quant. assessment by means of isotopic  
studies of the processes of hexose-6-phosphate recycling is presented.  
The model was initially designed for the study of  
**microorganisms producing** polysaccharides, but it can  
be extended to other situations.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L20 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 17 Dec 1999

ACCESSION NUMBER: 1999:795985 HCAPLUS

DOCUMENT NUMBER: 132:31775

TITLE: Vitamin C (L-ascorbic acid) production in  
microorganisms and plants genetically engineered  
for increased sugar epimerase activity

INVENTOR(S): Berry, Alan; Running, Jeffrey A.; Severson, David  
K.; Burlingame, Richard P.

PATENT ASSIGNEE(S): DCV Inc., Doing Business as Bio-Technical  
Resources, USA

SOURCE: PCT Int. Appl., 187 pp.  
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9964618	A1	19991216	WO 1999-US11576	19990526
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,				

Searcher : Shears 571-272-2528

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IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG,  
SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM,  
AZ, BY, KG, KZ, MD, RU, TJ, TM  
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE,  
DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,  
CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
US 2002012979 A1 20020131 US 1999-318271 19990525  
CA 2331198 AA 19991216 CA 1999-2331198 19990526  
AU 9942051 A1 19991230 AU 1999-42051 19990526  
EP 1084267 A1 20010321 EP 1999-925846 19990526  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI  
JP 2002517256 T2 20020618 JP 2000-553608 19990526  
PRIORITY APPLN. INFO.: US 1998-88549P P 19980608  
US 1999-125073P P 19990317  
US 1999-125054P P 19990318  
WO 1999-US11576 W 19990526

AB A biosynthetic method for producing vitamin C (ascorbic acid, L-ascorbic acid, or AA) is disclosed, such method including fermentation of a microorganism or plant having at least one genetic modification to increase the action of an enzyme involved in the ascorbic acid biosynthetic pathway. Included is the use of nucleotide sequences encoding epimerases, including the endogenous GDP-D-mannose:GDP-L-galactose epimerase from the L-ascorbic acid pathway and homologues thereof for the purposes of improving the biosynthetic production of ascorbic acid. The present invention also relates to genetically modified microorganisms, such as strains of microalgae, bacteria and yeast useful for producing L-ascorbic acid, and to genetically modified plants, useful for producing consumable plant food products.

IT 53-57-6, NADPH

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(epimerase cofactor; vitamin C (L-ascorbic acid) **production** in **microorganisms** and plants genetically engineered for increased **sugar** epimerase activity)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN  
ED Entered STN: 22 Oct 1999  
ACCESSION NUMBER: 1999:672425 HCAPLUS  
DOCUMENT NUMBER: 131:298724  
TITLE: Enzymic production of vitamin B6  
INVENTOR(S): Hoshino, Tatsuo; Tazoe, Masaaki  
PATENT ASSIGNEE(S): F. Hoffmann-La Roche AG, Switz.  
SOURCE: Eur. Pat. Appl., 10 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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Searcher : Shears 571-272-2528

10/781499

EP 950715	A2	19991020	EP 1999-106676	19990401
EP 950715	A3	20010725		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
CA 2268539	AA	19991015	CA 1999-2268539	19990412
NO 9901738	A	19991018	NO 1999-1738	19990413
AU 9923727	A1	19991028	AU 1999-23727	19990413
JP 2000023690	A2	20000125	JP 1999-104958	19990413
MX 9903430	A	20000228	MX 1999-3430	19990413
IN 188473	A	20020928	IN 1999-MA412	19990413
US 6060267	A	20000509	US 1999-291718	19990414
BR 9902362	A	20000606	BR 1999-2362	19990414
CN 1232875	A	19991027	CN 1999-105083	19990415
PRIORITY APPLN. INFO.:			EP 1998-106812	A 19980415

OTHER SOURCE(S): CASREACT 131:298724

AB A process for an enzymic production of vitamin B6 which comprises incubating 1-deoxy-D-threo-pentulose and 4-hydroxy-L-threonine with an enzyme reaction system prepared from cells of **microorganism** belonging to genus Rhizobium, Sinorhizobium, Flavobacterium, Chryseobacterium, Lactobacillus, Arthrobacter, Bacillus, Escherichia, Pseudomonas, Stenotrophomonas, Enterobacter, Corynebacterium, Brevibacterium, Exiguobacterium, Saccharomyces, Yamadazma, Pichia, and Candida, in the presence of NADP+, NAD+, ATP. Mn2+ and Mg2+ stimulate the above reaction. This process affords high yields of vitamin B6, a vitamin essential for the nutrition of animals, plants, and microorganisms and useful as a medicine or food additive.

L20 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2006 ACS on STN

ED Entered STN: 12 May 1984

ACCESSION NUMBER: 1979:489520 HCAPLUS

DOCUMENT NUMBER: 91:89520

TITLE: Phosphorylation

INVENTOR(S): Yasudo, Gyo; Kimura, Kazuo

PATENT ASSIGNEE(S): Kyowa Hakko Kogyo Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 54046891	A2	19790413	JP 1977-113194	19770921
JP 58052639	B4	19831124		
PRIORITY APPLN. INFO.:			JP 1977-113194	A 19770921

AB Cells or cell **prepns.** of **microorganisms** that **produces** a desired phosphorylated compound from the corresponding precursor and high-energy phosphate and that produces a high-energy phosphate from an energy source and phosphate donor and also regenerates low-energy phosphates to high-energy phosphates are incubated in a reaction mixture containing a precursor of the desired phosphate donor to yield a phosphate compound such as NADP [53-59-8] CoA, FAD, and cytidine diphosphate choline; this method does not require expensive high-energy phosphates such as ATP. Thus, 2 g of a mixture containing freeze-dried Saccharomyces cerevisiae ATCC

Searcher : Shears 571-272-2528

15248 and *Brevibacterium ammoniagenes* ATCC 6872 (1:2) was suspended in a solution containing 5 g physiol. saline and 5 g 1% chitosan, and to this was added a solution containing benzene 29, hexane 11, Et cellulose 3, and sorbitan monolaurate 0.8 g. The mixture was added to 120 mL 1% poly(ethylene glycol) (pH 8.5), and benzene was removed by adding cold hexane at 10-15 mL/min for 1 h to yield microcapsules of the microbial preparation. A mixture containing the microcapsules 10 mL, NAD [53-84-9] 0.66, cysteine-HCl 0.07, MgSO<sub>4</sub>·7H<sub>2</sub>O 0.1, glucose 7.2, and inorg. phosphate 3.8 g was incubated at 37° for 2 h to yield 0.13 g NADP.

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 11:47:38 ON 16 MAR 2006)

L1	2	SEA FILE=REGISTRY ABB=ON	PLU=ON	METHIONINE/CN
L2	2	SEA FILE=REGISTRY ABB=ON	PLU=ON	CYSTEINE/CN
L3	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	CYSTEIN/CN
L4	6	SEA FILE=REGISTRY ABB=ON	PLU=ON	(THREONINE OR LYSINE OR ISOLEUCINE)/CN
L5	10	SEA FILE=REGISTRY ABB=ON	PLU=ON	L1 OR L2 OR L3 OR L4
L6	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	NADPH/CN
L7	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	NADP/CN
L8	2	SEA FILE=REGISTRY ABB=ON	PLU=ON	L6 OR L7
L12	16860	SEA FILE=HCAPLUS ABB=ON	PLU=ON	(MICROORGANISM OR MICRO ORGANISM) (10A) (PREP? OR PRODUCE# OR PRODUCING OR PROD# OR MANUF?)
L18	2213	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L12(L) (L5 OR METHIONINE OR CYSTEIN# OR THREONINE OR LYSINE OR ISOLEUCINE OR ISO LEUCINE OR SUGAR OR CARBOHYDRATE OR NUCLEIC OR DNA OR DEOXYRIBONUCLEIC OR DEOXY RIBONUCLEIC OR LIPID OR LYS OR MET OR CYS OR THR OR LYS OR ILE)
L19	16	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L18(L) (L8 OR NADPH OR NADP OR (COENZYME OR CO ENZYME) (W) (II OR 2) OR NICOTINAMIDE ADENINE (2W) PHOSPHATE OR (TRIPHOSPHOPYRIDINE OR TRI (W) (PHOS PHOPYRIDINE OR PHOSPHO PYRIDINE) OR TRIPHOSPHO PYRIDINE) (W) NUCLEOTIDE)
L21	52	SEA L19		
L25	4	SEA L21(L) MODIF?		
L1	2	SEA FILE=REGISTRY ABB=ON	PLU=ON	METHIONINE/CN
L2	2	SEA FILE=REGISTRY ABB=ON	PLU=ON	CYSTEINE/CN
L3	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	CYSTEIN/CN
L4	6	SEA FILE=REGISTRY ABB=ON	PLU=ON	(THREONINE OR LYSINE OR ISOLEUCINE)/CN
L5	10	SEA FILE=REGISTRY ABB=ON	PLU=ON	L1 OR L2 OR L3 OR L4
L6	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	NADPH/CN
L7	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	NADP/CN
L8	2	SEA FILE=REGISTRY ABB=ON	PLU=ON	L6 OR L7
L12	16860	SEA FILE=HCAPLUS ABB=ON	PLU=ON	(MICROORGANISM OR MICRO ORGANISM) (10A) (PREP? OR PRODUCE# OR PRODUCING OR PROD# OR MANUF?)
L18	2213	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L12(L) (L5 OR METHIONINE OR CYSTEIN# OR THREONINE OR LYSINE OR ISOLEUCINE OR ISO LEUCINE OR SUGAR OR CARBOHYDRATE OR NUCLEIC OR DNA OR DEOXYRIBONUCLEIC OR DEOXY RIBONUCLEIC OR LIPID OR LYS OR MET OR CYS OR THR OR LYS OR ILE)
L19	16	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L18(L) (L8 OR NADPH OR NADP OR (COENZYME OR CO ENZYME) (W) (II OR 2) OR NICOTINAMIDE

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ADENINE(2W) PHOSPHATE OR (TRIPHOSPHOPYRIDINE OR TRI(W) (PHOS  
PHOPYRIDINE OR PHOSPHO PYRIDINE) OR TRIPHOSPHO PYRIDINE) (W)  
NUCLEOTIDE)

L21 52 SEA L19  
L26 1 SEA L21(L) EVOLV?

L1 2 SEA FILE=REGISTRY ABB=ON PLU=ON METHIONINE/CN  
L2 2 SEA FILE=REGISTRY ABB=ON PLU=ON CYSTEINE/CN  
L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON CYSTEIN/CN -  
L4 6 SEA FILE=REGISTRY ABB=ON PLU=ON (THREONINE OR LYSINE OR  
ISOLEUCINE)/CN  
L5 10 SEA FILE=REGISTRY ABB=ON PLU=ON L1 OR L2 OR L3 OR L4  
L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON NADPH/CN  
L7 1 SEA FILE=REGISTRY ABB=ON PLU=ON NADP/CN  
L8 2 SEA FILE=REGISTRY ABB=ON PLU=ON L6 OR L7  
L12 16860 SEA FILE=HCAPLUS ABB=ON PLU=ON (MICROORGANISM OR MICRO  
ORGANISM) (10A) (PREP? OR PRODUCE# OR PRODUCING OR PROD# OR  
MANUF?)  
L18 2213 SEA FILE=HCAPLUS ABB=ON PLU=ON L12(L) (L5 OR METHIONINE  
OR CYSTEIN# OR THREONINE OR LYSINE OR ISOLEUCINE OR ISO  
LEUCINE OR SUGAR OR CARBOHYDRATE OR NUCLEIC OR DNA OR  
DEOXYRIBONUCLEIC OR DEOXY RIBONUCLEIC OR LIPID OR LYS OR  
MET OR CYS OR THR OR LYS OR ILE)  
L19 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L18(L) (L8 OR NADPH OR  
NADP OR (COENZYME OR CO ENZYME) (W) (II OR 2) OR NICOTINAMIDE  
ADENINE(2W) PHOSPHATE OR (TRIPHOSPHOPYRIDINE OR TRI(W) (PHOS  
PHOPYRIDINE OR PHOSPHO PYRIDINE) OR TRIPHOSPHO PYRIDINE) (W)  
NUCLEOTIDE)  
L21 52 SEA L19  
L27 14 SEA L21(L) (METHOD OR TECHNIQUE)  
L28 7 S (L25 OR L26 OR L27) NOT L16  
L29 7 DUP REM L28 (0 DUPLICATES REMOVED)

L29 ANSWER 1 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2004-158569 [16] WPIDS  
DOC. NO. CPI: C2004-063230  
TITLE: Producing 3-hydroxycyclohexanone useful for producing  
substituted resorcinol derivatives, by reducing  
1,3-cyclohexanedione with enzyme, microorganism  
producing the enzyme or treated enzyme, and  
recovering product.  
DERWENT CLASS: D16 E15  
INVENTOR(S): ITOH, N; WAKITA, R  
PATENT ASSIGNEE(S): (SUMO) SUMITOMO CHEM CO LTD  
COUNTRY COUNT: 33  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 1382683	A2	20040121	(200416)*	EN	37
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR					
JP 2004097208	A	20040402	(200424)		49
US 2005272136	A1	20051208	(200581)		
EP 1382683	B1	20060222	(200615)	EN	
R: CH DE FR GB IT LI					

Searcher : Shears 571-272-2528

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1382683	A2	EP 2003-254408	20030711
JP 2004097208	A	JP 2003-189299	20030701
US 2005272136	A1	US 2003-617034	20030711
EP 1382683	B1	EP 2003-254408	20030711

PRIORITY APPLN. INFO: JP 2002-205207 20020715

AN 2004-158569 [16] WPIDS

AB EP 1382683 A UPAB: 20040305

NOVELTY - Producing (M1) 3-hydroxycyclohexanone (I), by reacting 1,3-cyclohexanedione with an enzyme having an ability to reduce 1,3-cyclohexanedione to (I), a microorganism producing the enzyme or a treated material of the enzyme or of the microorganism, and recovering resulting (I).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for optically active 3-hydroxycyclohexanone.

USE - (M1) is useful for producing 3-hydroxycyclohexanone (claimed). (I) is useful for producing substituted resorcinol derivatives.

ADVANTAGE - (M1) efficiently and readily produces (I).

Dwg.0/0

L29 ANSWER 2 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 2003-256375 [25] WPIDS

CROSS REFERENCE: 2003-239344 [23]; 2003-239345 [23]; 2003-248015 [24];  
2003-248016 [24]; 2003-248017 [24]; 2003-256373 [25];  
2003-256374 [25]; 2003-256376 [25]; 2003-256377 [25];  
2003-289779 [28]

DOC. NO. CPI: C2003-066424

TITLE: Preparing L-amino acids, e.g. L-threonine by fermenting microorganisms of Enterobacteriaceae family in which at least the pykF gene is enhanced, in particular overexpressed, and isolating the desired amino acid.

DERWENT CLASS: B05 D16 E16

INVENTOR(S): RIEPING, M

PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG

COUNTRY COUNT: 100

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003008609	A2	20030130	(200325)*	EN	29
RW:	AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS				
	LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW				
W:	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE				
	DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG				
	KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM				
	PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ				
	VN YU ZA ZM ZW				
AU 2002319281	A1	20030303	(200452)		
AU 2002319281	A8	20051020	(200615)		

APPLICATION DETAILS:

10/781499

PATENT NO	KIND	APPLICATION	DATE
WO 2003008609	A2	WO 2002-EP7367	20020703
AU 2002319281	A1	AU 2002-319281	20020703
AU 2002319281	A8	AU 2002-319281	20020703

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002319281	A1 Based on	WO 2003008609
AU 2002319281	A8 Based on	WO 2003008609

PRIORITY APPLN. INFO: US 2001-306869P 20010723; DE  
2001-10135053 20010718

AN 2003-256375 [25] WPIDS  
CR 2003-239344 [23]; 2003-239345 [23]; 2003-248015 [24]; 2003-248016 [24]; 2003-248017 [24]; 2003-256373 [25]; 2003-256374 [25]; 2003-256376 [25]; 2003-256377 [25]; 2003-289779 [28]  
AB WO2003008609 A UPAB: 20060302  
NOVELTY - Preparing (M) L-amino acids, in particular L-threonine (L-Thr) by fermenting microorganisms of Enterobacteriaceae family which produce L-Thr and in which at least pykF gene or nucleotide sequence which codes for this, is enhanced, in particular over-expressed; concentrating L-Thr in medium or in cells of microorganism; isolating L-Thr, constituents of fermentation broth and/or biomass wholly or partly, optionally remaining in product, is new.

USE - M is useful for preparing L-amino acids, in particular L-threonine.

ADVANTAGE - M provides improved production of L-amino acids in particular L-threonine.

DESCRIPTION OF DRAWING(S) - The figure shows the plasmid pTrc99ApykF which contains the pykF gene.  
Dwg.1/1

L29 ANSWER 3 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 2003-256373 [25] WPIDS  
CROSS REFERENCE: 2003-239344 [23]; 2003-239345 [23]; 2003-248015 [24]; 2003-248016 [24]; 2003-248017 [24]; 2003-256374 [25]; 2003-256375 [25]; 2003-256376 [25]; 2003-256377 [25]; 2003-289779 [28]

DOC. NO. CPI: C2003-066422

TITLE: Preparing L-amino acids, e.g. L-threonine by fermenting microorganisms of Enterobacteriaceae family in which at least the malE gene is enhanced, in particular overexpressed, and isolating the desired amino acid.

DERWENT CLASS: B05 D16 E16

INVENTOR(S): RIEPING, M

PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG

COUNTRY COUNT: 101

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003008605	A2	20030130	(200325)*	EN	29
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS					
LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW					

Searcher : Shears 571-272-2528

10/781499

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE  
DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG  
KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM  
PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ  
VN YU ZA ZM ZW

DE 10135053 A1 20030206 (200325)

EP 1407025 A2 20040414 (200426) EN

R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV  
MC MK NL PT RO SE SI SK TR

AU 2002325293 A1 20030303 (200452)

AU 2002325293 A8 20051020 (200615)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003008605	A2	WO 2002-EP7354	20020703
DE 10135053	A1	DE 2001-10135053	20010718
EP 1407025	A2	EP 2002-758301	20020703
		WO 2002-EP7354	20020703
AU 2002325293	A1	AU 2002-325293	20020703
AU 2002325293	A8	AU 2002-325293	20020703

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1407025	A2 Based on	WO 2003008605
AU 2002325293	A1 Based on	WO 2003008605
AU 2002325293	A8 Based on	WO 2003008605

PRIORITY APPLN. INFO: US 2001-306869P 20010723; DE  
2001-10135053 20010718

AN 2003-256373 [25] WPIDS

CR 2003-239344 [23]; 2003-239345 [23]; 2003-248015 [24]; 2003-248016  
[24]; 2003-248017 [24]; 2003-256374 [25]; 2003-256375 [25];  
2003-256376 [25]; 2003-256377 [25]; 2003-289779 [28]

AB WO2003008605 A UPAB: 20060302

NOVELTY - Preparing (M1) L-amino acids, in particular L-threonine  
(L-Thr) by fermenting microorganisms of Enterobacteriaceae family  
which produce L-Thr and in which at least male gene or nucleotide  
sequence which codes for this, is enhanced, in particular  
over-expressed; concentrating L-Thr in medium or in cells of  
microorganism; isolating L-Thr, constituents of fermentation broth  
and/or biomass wholly or partly, optionally remaining in product, is  
new.

USE - (M1) is useful for preparing L-amino acids, in particular  
L-threonine.

ADVANTAGE - (M1) provides improved production of L-amino acids in  
particular L-threonine.

DESCRIPTION OF DRAWING(S) - The figure shows the plasmid  
pTrc99Amale which contains the male gene.  
Dwg.1/1

L29 ANSWER 4 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 1999-561675 [47] WPIDS

DOC. NO. CPI: C1999-163670

TITLE: New transformed microorganisms for producing products  
such as ethanol, amino acids, polyalkoxyalkanoate or

Searcher : Shears 571-272-2528



10/781499

DERWENT CLASS: pentitols.  
 A23 D16 E16 E17 H06  
 INVENTOR(S): ARISTIDOU, A; LONDESBOROUGH, J; PENTTILAE, M;  
 RICHARD, P; RUOHONEN, L; SOEDERLUND, H; TELEMAN, A;  
 TOIVARI, M  
 PATENT ASSIGNEE(S): (VALW) VALTION TEKNIILLINEN TUTKIMUSKESKUS  
 COUNTRY COUNT: 86  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9946363	A1	19990916	(199947)*	EN	92
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW					
AU 9927303	A	19990927	(200006)		
EP 981600	A1	20000301	(200016)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
JP 2001525682	W	20011211	(200204)		88
AU 756211	B	20030109	(200320)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9946363	A1	WO 1999-FI185	19990311
AU 9927303	A	AU 1999-27303	19990311
EP 981600	A1	EP 1999-907641	19990311
		WO 1999-FI185	19990311
JP 2001525682	W	JP 1999-545439	19990311
		WO 1999-FI185	19990311
AU 756211	B	AU 1999-27303	19990311

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9927303	A Based on	WO 9946363
EP 981600	A1 Based on	WO 9946363
JP 2001525682	W Based on	WO 9946363
AU 756211	B Previous Publ. Based on	AU 9927303 WO 9946363

PRIORITY APPLN. INFO: FI 1998-551 19980311  
 AN 1999-561675 [47] WPIDS  
 AB WO 9946363 A UPAB: 19991116

NOVELTY - New microorganisms are transformed with at least one recombinant DNA molecule encoding or otherwise causing the expression of at least one enzyme that causes the functional coupling of the oxidation and reduction of substrates by 2 pyridine nucleotide-linked dehydrogenase (PNLD) reactions with different specificities for the NAD/NADH and NADP/NADPH coenzyme couples.

DETAILED DESCRIPTION - New microorganisms are transformed with at least one recombinant DNA molecule encoding or otherwise causing the expression of at least one enzyme that causes the

Searcher : Shears 571-272-2528

functional coupling of the oxidation and reduction of substrates by 2 pyridine nucleotide-linked dehydrogenase (PNLD) reactions with different specificities for the NAD/NADH and **NADP/NADPH** coenzyme couples and so facilitates the transfer of electrons between the 2 coenzyme couples through the substrates, the transformed **microorganisms** thereby **producing** useful products more efficiently than corresponding non-transformed **microorganisms**.

INDEPENDENT CLAIMS are also included for:

Saccharomyces cerevisiae (SC) strains selected from H1791 (VTT C-98298, DSM 12213), H1795 (VTT C-98300, DSM 12214), H1803 (VTT C-98302, DSM 12215), H2193 (VTT C-99317, DSM 12722), H2195 (VTT C-99320, DSM 12723), and H2222 (VTT C-99322, DSM 12724);

Schizosaccharomyces pombe strains selected from H2369 (VTT C-99323, DSM 12725) and H2370 (VTT C-99324, DSM 12726);

Corynebacteria strains selected from VTT E-991203 and VTT E-991204; and

(1) A **method** of producing ethanol from raw materials comprising pentoses, pentose polymers or mixtures comprising fermenting the starting materials with the above microorganisms.

USE - The **microorganisms** can be used for **producing** products such as ethanol (e.g. from a pentose or hexose), amino acids, e.g. **lysine**, polyhydroxyalkanoate, e.g. polyhydroxybutyrate, or a pentitol, e.g. xylitol.

ADVANTAGE - The microorganisms can increase the efficiency with which raw material is converted to useful products. They can produce more products per unit of raw material, can produce a product faster, produce less CO<sub>2</sub> per unit of product produced, and have a reduced oxygen requirement per unit of a product **produced**, as compared to corresponding non-transformed **microorganisms**.

Dwg.0/15

L29 ANSWER 5 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1999-563674 [48] WPIDS  
 DOC. NO. CPI: C1999-164593  
 TITLE: Increased production of vitamin B6 from  
 1-deoxy-D-threo-pentulose and 4-hydroxy-L-threonine,  
 useful as medicine and/or food additive.  
 DERWENT CLASS: B03 D16  
 INVENTOR(S): HOSHINO, T; TAZOE, M  
 PATENT ASSIGNEE(S): (HOFF) HOFFMANN LA ROCHE & CO AG F; (STAM) DSM IP  
 ASSETS BV; (HOFF) ROCHE VITAMINS INC  
 COUNTRY COUNT: 34  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 950715	A2	19991020	(199948)*	EN	10
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
NO 9901738	A	19991018	(199953)		
AU 9923727	A	19991028	(200005)		
CN 1232875	A	19991027	(200010)		
CA 2268539	A1	19991015	(200012)	EN	
JP 2000023690	A	20000125	(200016)		9
US 6060267	A	20000509	(200030)		
BR 9902362	A	20000606	(200036)		
KR 99083143	A	19991125	(200055)		
KR 99083176	A	19991125	(200055)		

10/781499

MX 9903430 A1 20000201 (200123)  
CN 1173044 C 20041027 (200615)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 950715	A2	EP 1999-106676	19990401
NO 9901738	A	NO 1999-1738	19990413
AU 9923727	A	AU 1999-23727	19990413
CN 1232875	A	CN 1999-105083	19990415
CA 2268539	A1	CA 1999-2268539	19990412
JP 2000023690	A	JP 1999-104958	19990413
US 6060267	A	US 1999-291718	19990414
BR 9902362	A	BR 1999-2362	19990414
KR 99083143	A	KR 1999-12882	19990413
KR 99083176	A	KR 1999-13087	19990414
MX 9903430	A1	MX 1999-3430	19990413
CN 1173044	C	CN 1999-105083	19990415

PRIORITY APPLN. INFO: EP 1998-106812 19980415

AN 1999-563674 [48] WPIDS

AB EP 950715 A UPAB: 19991122

NOVELTY - The production of vitamin B6 from 1-deoxy-D-threo-pentulose (DTP) and 4-hydroxy-L-threonine (HT) is new and comprises contacting DTP with an enzyme reaction system prepared from the cells of a microorganism capable of producing vitamin B6 in the presence of nicotinamide adenine dinucleotide phosphate (NADP+), nicotinamide adenine dinucleotide (NAD+) and adenosine triphosphate (ATP).

USE - Vitamin B6 is useful as an efficient vitamin for the nutrition of animals, plants and microorganisms and is also important as a medicine or food additive for humans.

ADVANTAGE - The method is useful for the highly efficient production of vitamin B6.

Dwg.0/0

L29 ANSWER 6 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 1995-075242 [10] WPIDS

CROSS REFERENCE: 2004-033640 [03]

DOC. NO. CPI: C1995-033502

TITLE: New clavulanic acid dehydrogenase from Streptomyces, and related DNA and vectors - used to produce beta-lactamase inhibiting clavulanic acid from new 3-oxo ethylidene analogues.

DERWENT CLASS: B02 B04 D16

INVENTOR(S): ARNELL, J; ELSON, S W; NICHOLSON, N H; WORONIECKI, S R; NICHOLSON, N H G

PATENT ASSIGNEE(S): (SMIK) SMITHKLINE BEECHAM PLC

COUNTRY COUNT: 57

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9503416	A1	19950202 (199510)*	EN	35	
RW: AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE					
W: AM AT AU BB BG BR BY CA CH CN CZ DE DK ES FI GB GE HU JP KE KG					
KP KR KZ LK LT LU LV MD MG MN MW NL NO NZ PL PT RO RU SD SE SI					

Searcher : Shears 571-272-2528

10/781499

SK TJ TT UA US UZ VN  
 AU 9474942 A 19950220 (199521)  
 EP 711350 A1 19960515 (199624) EN  
 R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE  
 JP 09502085 W 19970304 (199719) 42  
 EP 1236729 A1 20020904 (200266) EN  
 R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE SI  
 EP 711350 B1 20030319 (200325) EN  
 R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE SI  
 DE 69432304 E 20030424 (200335)  
 ES 2194871 T3 20031201 (200406)  
 US 6692950 B1 20040217 (200413)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9503416	A1	WO 1994-EP2346	19940715
AU 9474942	A	AU 1994-74942	19940715
EP 711350	A1	EP 1994-924775	19940715
		WO 1994-EP2346	19940715
JP 09502085	W	WO 1994-EP2346	19940715
		JP 1995-504921	19940715
EP 1236729	A1 Div ex	EP 1994-924775	19940715
		EP 2002-77067	19940715
EP 711350	B1	EP 1994-924775	19940715
		WO 1994-EP2346	19940715
	Related to	EP 2002-77067	19940715
DE 69432304	E	DE 1994-632304	19940715
		EP 1994-924775	19940715
		WO 1994-EP2346	19940715
ES 2194871	T3	EP 1994-924775	19940715
US 6692950	B1	WO 1994-EP2346	19940715
		US 1996-586664	19960403

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9474942	A Based on	WO 9503416
EP 711350	A1 Based on	WO 9503416
JP 09502085	W Based on	WO 9503416
EP 1236729	A1 Div ex	EP 711350
EP 711350	B1 Related to	EP 1236729
	Based on	WO 9503416
DE 69432304	E Based on	EP 711350
	Based on	WO 9503416
ES 2194871	T3 Based on	EP 711350
US 6692950	B1 Based on	WO 9503416

PRIORITY APPLN. INFO: GB 1993-15393 19930724

AN 1995-075242 [10] WPIDS

CR 2004-033640 [03]

AB WO 9503416 A UPAB: 20040223

New enzyme (I) with clavulanic acid dehydrogenase (CAD) activity has apparent mol wt 28 kb (by SDS-PAGE) and the N-terminal sequence PSALQGKVALITGASSGIGE. Also new are (1) CAD from Streptomyces mycelium; (2) DNA (II) encoding CAD (the specification includes a 1020 bp sequence from S. clavuligerus ATCC 27064, and the corresponding 238

amino acid protein sequence); (3) DNA (III) hybridising with (II), or its fragments, under high stringency conditions and encoding enzyme with CAD activity; (4) a vector containing the DNA; and (5) cpds of formula (A) and their salts: (R= H or Na).

USE - (A) are beta-lactamase inhibitors while the esters (cpd with R=Me or benzyl) can be converted to clavulanic acid (CA) by contact with (I) (opt produced by a microorganism having a high copy number of a gene encoded by (II) or (III)). CA is an ingredient of the antibiotic 'Augmentin' (RTM); it is now found that the final step in its biosynthesis is redn of the side chain aldehyde in (A) by (I), using NADPH as H donor. DNA probes can be used to isolate related or overlapping genes from total cellular DNA, while vectors contg the DNA can be used to generate modified microorganisms for synthesis of increased amounts of CA or to produce new or hybrid antibiotics.

ADVANTAGE - (A) is about 100 times more active than CA as a beta-lactamase inhibitor but has a very short half life. Redn with (1) is rapid, allowing yields of CA to be maximised.  
Dwg.0/4

L29 ANSWER 7 OF 7 JAPIO (C) 2006 JPO on STN  
ACCESSION NUMBER: 2001-103988 JAPIO  
TITLE: DNA SEQUENCE  
INVENTOR: STRASSER ALEXANDER W M DR; HOLLENBERG CORNELIS P;  
CIRIACY-WANTRUP MICHAEL VON; KOETTER PETER; AMORE  
RENE; PIONTEK MICHAEL; HAGEDORN JUTTA  
PATENT ASSIGNEE(S): RHEIN BIOTECH G FUER NEUE BIOTECHNOL PROZESSE &  
PROD MBH  
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2001103988	A	20010417	Heisei	C12N015-09

## APPLICATION INFORMATION

STN FORMAT: JP 2000-276227 19910326  
ORIGINAL: JP2000276227 Heisei  
PRIORITY APPLN. INFO.: DE 1990-40096769 19900326  
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined  
Applications, Vol. 2001

AN 2001-103988 JAPIO

AB PROBLEM TO BE SOLVED: To provide a DNA sequence containing a structural gene encoding xylitol dehydrogenase (XYL2) and capable of expressing the polypeptide in a microorganism, a combination of the DNA sequence, a vector, the microorganism, a manufacturing method for the XYL2 and the XYL2 as a protein and a producing method for NADP+ from NADPH by using a xylose resource, which is conventionally considered as a waste, as a carbon resource for ethanol fermentation or biomass production.

SOLUTION: This invention discloses cloning of DNA encoding the XYL2 which is a key for utilization of xylose, providing a tool useful for gene expression such as promoter or the like, a vector for transformation of a host cell mainly comprising a yeast, the host cell, an enzyme obtained by the expression and condition setting to succeed anaerobic fermentation. Microorganisms preferably used are Saccharomyces cerevisiae or Schizosaccharomyces probe.

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FILE 'MEDLINE' ENTERED AT 11:55:55 ON 16 MAR 2006

FILE LAST UPDATED: 15 MAR 2006 (20060315/UP). FILE COVERS 1950 TO DATE.

On December 11, 2005, the 2006 MeSH terms were loaded.

The MEDLINE reload for 2006 is now (26 Feb.) available. For details on the 2006 reload, enter HELP RLOAD at an arrow prompt (=>).

See also:

<http://www.nlm.nih.gov/mesh/>  
[http://www.nlm.nih.gov/pubs/techbull/nd04/nd04\\_mesh.html](http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html)  
[http://www.nlm.nih.gov/pubs/techbull/nd05/nd05\\_med\\_data\\_changes.html](http://www.nlm.nih.gov/pubs/techbull/nd05/nd05_med_data_changes.html)  
[http://www.nlm.nih.gov/pubs/techbull/nd05/nd05\\_2006\\_MeSH.html](http://www.nlm.nih.gov/pubs/techbull/nd05/nd05_2006_MeSH.html)

OLDMEDLINE is covered back to 1950.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2006 vocabulary.

This file contains CAS Registry Numbers for easy and accurate substance identification.

L30            625 SEA FILE=MEDLINE ABB=ON PLU=ON (NADP AND (METHIONINE OR  
                  CYSTEINE OR THREONINE OR LYSINE OR ISOLEUCINE OR SUGARS OR  
                  NUCLEIC ACIDS OR LIPIDS))/CT  
 L32            68295 SEA FILE=MEDLINE ABB=ON PLU=ON BACTERIA/CT  
 L34            4 SEA FILE=MEDLINE ABB=ON PLU=ON L30 AND L32

L34 ANSWER 1 OF 4            MEDLINE on STN  
 ACCESSION NUMBER:    2004581110            MEDLINE  
 DOCUMENT NUMBER:    PubMed ID: 15550941  
 TITLE:                Bacterial redox sensors.  
 AUTHOR:               Green Jeffrey; Paget Mark S  
 CORPORATE SOURCE:    Krebs Institute for Biomolecular Research, Department  
                          of Molecular Biology and Biotechnology, University of  
                          Sheffield, Western Bank, Sheffield S10 2TN, United  
                          Kingdom.. Jeff.Green@sheffield.ac.uk  
 SOURCE:               Nature reviews. Microbiology, (2004 Dec) Vol. 2, No.  
                          12, pp. 954-66. Ref: 120  
                          Journal code: 101190261. ISSN: 1740-1526.  
 PUB. COUNTRY:        England: United Kingdom  
 DOCUMENT TYPE:       Journal; Article; (JOURNAL ARTICLE)  
                          General Review; (REVIEW)  
 LANGUAGE:             English  
 FILE SEGMENT:        Priority Journals  
 ENTRY MONTH:         200412  
 ENTRY DATE:           Entered STN: 20041123  
                          Last Updated on STN: 20041223  
                          Entered Medline: 20041222  
 ED    Entered STN: 20041123  
       Last Updated on STN: 20041223  
       Entered Medline: 20041222  
 AB    Redox reactions pervade living cells. They are central to both  
       anabolic and catabolic metabolism. The ability to maintain redox  
       balance is therefore vital to all organisms. Various regulatory  
       sensors continually monitor the redox state of the internal and  
       external environments and control the processes that work to maintain

redox homeostasis. In response to redox imbalance, new metabolic pathways are initiated, the repair or bypassing of damaged cellular components is coordinated and systems that protect the cell from further damage are induced. Advances in biochemical analyses are revealing a range of elegant solutions that have evolved to allow bacteria to sense different redox signals.

L34 ANSWER 2 OF 4 MEDLINE on STN  
 ACCESSION NUMBER: 74083372 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 4149299  
 TITLE: Desaturation and saturation of fatty acids by sheep rumen bacteria: optimal conditions and cofactor requirements.  
 AUTHOR: Sklan D; Budowski P  
 SOURCE: Journal of dairy science, (1974 Jan) Vol. 57, No. 1, pp. 56-60.  
 Journal code: 2985126R. ISSN: 0022-0302.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 197403  
 ENTRY DATE: Entered STN: 19900310  
 Last Updated on STN: 19950206  
 Entered Medline: 19740320  
 ED Entered STN: 19900310  
 Last Updated on STN: 19950206  
 Entered Medline: 19740320

L34 ANSWER 3 OF 4 MEDLINE on STN  
 ACCESSION NUMBER: 74027304 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 4148026  
 TITLE: A theoretical study on the amount of ATP required for synthesis of microbial cell material.  
 AUTHOR: Stouthamer A H  
 SOURCE: Antonie van Leeuwenhoek, (1973) Vol. 39, No. 3, pp. 545-65.  
 Journal code: 0372625. ISSN: 0003-6072.  
 PUB. COUNTRY: Netherlands  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 197401  
 ENTRY DATE: Entered STN: 19900310  
 Last Updated on STN: 19950206  
 Entered Medline: 19740114  
 ED Entered STN: 19900310  
 Last Updated on STN: 19950206  
 Entered Medline: 19740114

L34 ANSWER 4 OF 4 MEDLINE on STN  
 ACCESSION NUMBER: 70158509 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 4392412  
 TITLE: Identification of O-alkyldihydroxyacetone phosphate, O-alkyldihydroxyacetone, and diacyl glyceryl ethers after enzymic synthesis.  
 AUTHOR: Snyder F; Blank M L; Malone B; Wykle R L  
 SOURCE: The Journal of biological chemistry, (1970 Apr 10) Vol. 245, No. 7, pp. 1800-5.

10/781499

JOURNAL code: 2985121R. ISSN: 0021-9258.  
PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 197005  
ENTRY DATE: Entered STN: 19900101  
Last Updated on STN: 19970203  
Entered Medline: 19700526

ED Entered STN: 19900101  
Last Updated on STN: 19970203  
Entered Medline: 19700526

(FILE 'CAPLUS, MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH,  
JICST-EPLUS, JAPIO' ENTERED AT 12:03:10 ON 16 MAR 2006)

L35 263 SEA ABB=ON PLU=ON "CHATEAU M"?/AU  
L36 6840 SEA ABB=ON PLU=ON "GONZALEZ B"?/AU  
L37 82 SEA ABB=ON PLU=ON ("MEYNIAL SALLES I"? OR "SALLES  
MEYNIAL I"? OR "SALLES I"? OR "MEYNIAL I"?)/AU  
L38 301 SEA ABB=ON PLU=ON "SOUCAILLE P"?/AU  
L39 19 SEA ABB=ON PLU=ON "ZINK O"?/AU  
L40 2 SEA ABB=ON PLU=ON L35 AND L36 AND L37 AND L38 AND L39  
L41 11 SEA ABB=ON PLU=ON L35 AND (L36 OR L37 OR L38 OR L39)  
L42 7 SEA ABB=ON PLU=ON L36 AND (L37 OR L38 OR L39)  
L43 32 SEA ABB=ON PLU=ON L37 AND (L38 OR L39)  
L44 4 SEA ABB=ON PLU=ON L38 AND L39  
L45 7451 SEA ABB=ON PLU=ON L35 OR L36 OR L37 OR L38 OR L39  
L46 2 SEA ABB=ON PLU=ON (L43 OR L45) AND L14  
L47 12 SEA ABB=ON PLU=ON L40 OR L41 OR L44 OR L46 OR L42  
L48 7 DUP REM L47 (5 DUPLICATES REMOVED)

L48 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 1

ACCESSION NUMBER: 2005:1239041 CAPLUS

DOCUMENT NUMBER: 144:2275

TITLE: Construction of microorganism containing  
recombinant homoserine transsuccinylase with  
altered feedback sensitivity and recombinant  
S-adenosylmethionine synthetase with reduced  
activity for the production of methionine

INVENTOR(S): Bestel-Corre, Gwenaeelle Anne Lise; Chateau,  
Michel; Figge, Rainer Martin; Raynaud,  
Celine; Soucaille, Philippe Noel Paul

PATENT ASSIGNEE(S): Metabolic Explorer, Fr.

SOURCE: PCT Int. Appl., 72 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005111202	A1	20051124	WO 2004-IB1901	20040512
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,				

Searcher : Shears 571-272-2528



VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL,  
 PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
 GW, ML, MR, NE, SN, TD, TG

WO 2005108561 A2 20051117 WO 2005-EP52180 20050512

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM,  
 KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,  
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 SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA,  
 UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC,  
 NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,  
 GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

WO 2004-IB1901

A 20040512

AB The present invention relates to the use of recombinant homoserine transsuccinylase with altered sensitivity to feedback inhibitors S-adenosylmethionine and methionine (MetA\*) and optionally, recombinant S-adenosylmethionine synthetase with reduced activity (MetK\*) for the production of methionine, its precursors or derivs. thereof. More specifically, the authors isolated Escherichia coli mutants containing homoserine transsuccinylase which show decreased feedback-sensitivity towards S-adenosylmethionine and methionine. E. coli mutants containing S-adenosylmethionine synthetase with reduced activity were also isolated. Construction of E. coli strains for the production of O-succinylhomoserine or methionine by combining feed-back resistant MetA alleles with MetK alleles with decreased activity is described. Fermentation of E. coli production strains and anal. of yield is reported.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2005:1220814 CAPLUS

DOCUMENT NUMBER: 143:474228

TITLE: Construction of microbial recombinant homoserine transsuccinylase with altered feedback sensitivity and S-adenosyl methionine synthetase with reduced activity for the production of methionine

INVENTOR(S): Bestel-Corre, Gwenaeelle; Chateau, Michel  
 ; Figge, Rainer Martin; Raynaud, Celine;  
 Soucaille, Philippe Noel Paul

PATENT ASSIGNEE(S): Metabolic Explorer, Fr.

SOURCE: PCT Int. Appl., 46 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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Searcher : Shears 571-272-2528

WO 2005108561 A2 20051117 WO 2005-EP52180 20050512  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM,  
 KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,  
 MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,  
 SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA,  
 UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC,  
 NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,  
 GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 WO 2005111202 A1 20051124 WO 2004-IB1901 20040512  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
 MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
 SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
 VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL,  
 PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
 GW, ML, MR, NE, SN, TD, TG  
 PRIORITY APPLN. INFO.: WO 2004-IB1901 A 20040512

OTHER SOURCE(S): MARPAT 143:474228

AB The present invention relates to the use of recombinant homoserine transsuccinylase with altered feedback sensitivity (MetA\*) and eventually, recombinant S-adenosyl methionine synthetase with reduced activity (MetK\*) for the production of methionine, its precursors or derivs. thereof. More specifically, Escherichia coli mutants containing homoserine transsuccinylase with decreased feedback sensitivity towards methionine and S-adenosylmethionine were isolated. E. coli mutants containing S-adenosyl methionine synthetase with reduced activity were also isolated. Construction of E. coli strains for the production of O-succinylhomoserine or methionine by combined feed-back resistant MetA alleles with MetK alleles with decreased activity is described. Fermentation of E. coli production strains and anal. of yield is reported.

L48 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 2005:408107 CAPLUS

DOCUMENT NUMBER: 142:458102

TITLE: Mutagenesis and biotransformation to optimize NADPH/NADP ratios and metabolite biosynthesis in microorganisms

INVENTOR(S): Boisart, Cedric; Chateau, Michel;  
 Gonzalez, Benjamin; Soucaille,  
 Philippe Noel Paul; Zink, Olivier

PATENT ASSIGNEE(S): Metabolic Explorer, Fr.

SOURCE: Fr. Demande, 34 pp.

CODEN: FRXXBL

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

10/781499

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2862068	A1	20050513	FR 2003-13056	20031106
WO 2005047498	A1	20050526	WO 2004-FR2848	20041105

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

FR 2003-13056

A 20031106

AB The present invention relates to mutagenesis and biotransformation for optimizing NADPH/NADP ratios and metabolite biosynthesis in microorganism stocks. The stocks according to the invention are usable in processes of NADPH-dependent biotransformation, with examples demonstrating either xylose to xylitol bioconversion or glucose fermentation for production of cysteine or hydrocortisone. In order to

promote these NADPH-dependent reactions, mutagenesis of genes encoding metabolic enzymes was performed, examples of which include genes *udhA*, *gor*, and *pgi*. The intended use of these modified microbial strains is improved production of a wide range of biomols. including amino acids, vitamins, sterols, flavonoids, fatty acids, polyols and organic acids.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 4 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

ACCESSION NUMBER: 2005-524370 [54] WPIDS

DOC. NO. CPI: C2005-159317

TITLE: Preparation of micro-organisms for production of 1,2-propanediol for use e.g. in polyesters, involves culture of an initial strain with deletion of certain genes and evolution of genes with better propanediol synthase activity.

DERWENT CLASS: A41 D16 E17

INVENTOR(S): GONZALES, B; MEYNIAL, S I; SOUCAILLE, P N P  
; GONZALEZ, B; MEYNIAL-SALLES, I;  
SOUCAILLE, P

PATENT ASSIGNEE(S): (META-N) METABOLIC EXPLORER

COUNTRY COUNT: 108

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
FR 2864967	A1	20050715	(200554)*		48
WO 2005073364	A2	20050811	(200554)	FR	
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP					

Searcher : Shears 571-272-2528

10/781499

KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA  
NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR  
TT TZ UA UG US UZ VC VN YU ZA ZM ZW

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
FR 2864967	A1	FR 2004-214	20040112
WO 2005073364	A2	WO 2005-FR70	20050112

PRIORITY APPLN. INFO: FR 2004-214 20040112

AN 2005-524370 [54] WPIDS

AB FR 2864967 A UPAB: 20050823

NOVELTY - Micro-organisms capable of the production of 1,2-propanediol from a simple source of carbon (I) are obtained by selective culture of an initial strain in presence of (I), by deleting the *tpiA* gene and the gene(s) involved in the conversion of methylglyoxal into lactate and causing the evolution of genes with improved 1,2-propanediol synthase activity.

DETAILED DESCRIPTION - Method (M1) for the preparation of a strain of micro-organisms capable of the production of 1,2-propanediol (PD) by metabolism of a simple source of carbon (I). This involves:

(a) the selective culture of an initial strain in a suitable culture medium containing (I) by deletion of the gene *tpiA* and of at least one gene involved in the conversion of methylglyoxal (propanal) into lactate, in order to bring about the evolution in this initial strain of one or more genes involved in the biosynthetic route from DHAP to methylglyoxal and then to PD into genes with improved PD-synthase activity, followed by;

(b) selection and isolation of the improved strain(s).

INDEPENDENT CLAIMS are also included for

(1) an initial strain as defined above

(2) the evolved strain obtained by this method

(3) method (M2) for the production of PD by culturing the evolved strain in a suitable medium containing a simple source of carbon, and then isolating the PD obtained.

USE - Propane-1,2-diol obtained by this method is used, e.g. for the production of unsaturated polyester resins, liquid detergents, coolants and aircraft de-icing fluids.

ADVANTAGE - A biological method enabling the simultaneous production of 1,2-propanediol and acetone from a simple source of carbon.

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L48 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 4

ACCESSION NUMBER: 2004:740475 CAPLUS

DOCUMENT NUMBER: 141:239279

TITLE: Method for production of evolved microorganisms with modified metabolic pathways

INVENTOR(S): Chateau, Michel; Gonzalez, Benjamin; Meynial-Salles, Isabelle; Soucaille, Philippe Noeel Paul; Zink, Olivier

PATENT ASSIGNEE(S): Metabolic Explorer, Fr.

SOURCE: PCT Int. Appl., 113 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

Searcher : Shears 571-272-2528

LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004076659	A2	20040910	WO 2004-FR354	20040217
WO 2004076659	A3	20041216		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
FR 2851256	A1	20040820	FR 2003-1924	20030218
FR 2851255	A1	20040820	FR 2003-5768	20030514
FR 2854902	A1	20041119	FR 2003-5769	20030514
FR 2862067	A1	20050513	FR 2003-13054	20031106
EP 1597364	A2	20051123	EP 2004-711626	20040217
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			FR 2003-1924	A 20030218
			FR 2003-5768	A 20030514
			FR 2003-5769	A 20030514
			FR 2003-13054	A 20031106
			WO 2004-FR354	W 20040217

AB The invention relates to a method for the **preparation** of evolved **microorganisms** which permit a modification of metabolic pathways, characterized in comprising the following steps: (a) **production** of a modified **microorganism** by genetic modification of initial microbial in order to inhibit the **production** of or the consumption of a metabolite when the **microorganism** is cultivated in a defined medium which also affects the capacity of the microorganism for growth, (b) culture of the modified microorganisms previously obtained in said defined medium to induce evolution where it might be necessary to add a co-substrate to the defined medium in order to permit said evolution, (c) selection of modified microorganisms which are capable of growth in the defined medium, optionally with a co-substrate. Thus, *E. coli*  $\Delta$ MetE mutants were prepared. These **methionine** synthase deletion mutants are **Met** auxotrophs. Growth of these mutants in minimal medium containing methylmercaptan resulted in the growth of *E. coli* strains with **methionine** synthase activity. This activity was supplied by a mutated cystathionine  $\gamma$ -synthase gene (**metB\***). The  $K_m$ 's for methylmercaptan of MetB (wild-type) and of MetB\* were 277 and 6 mM, resp. The corresponding  $V_{max}$  values were 13.9 and 5.6 mU/mg protein, resp. The  $K_m$  (for **cysteine**) and  $V_{max}$  of the cystathionine  $\gamma$ -synthase activity of the MetB\* enzyme were reduced 13-fold. Comparison of wild-type and mutant *E. coli* grown on minimal medium containing glucose and methylmercaptan indicated that the mutant produced more intracellular Ala, pyruvate,

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ketobutyrate, and 2-ketoisocaproate and less Trp, NVal, NLeu, Leu, and Met. Addnl., the mutant produced more extracellular Glu, Ile, Thr, Val, and 2-ketoisocaproate and less pyruvate, NLeu, and Trp.

L48 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN DUPLICATE 5  
ACCESSION NUMBER: 2004:680008 CAPLUS  
DOCUMENT NUMBER: 141:205767  
TITLE: Screening and development of bacteria producing methionine by a new metabolic path  
INVENTOR(S): Chateau, Michel; Gonzalez, Benjamin; Soucaille, Philippe Noel Paul  
PATENT ASSIGNEE(S): Metabolic Explorer, Fr.  
SOURCE: Fr. Demande, 30 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2851256	A1	20040820	FR 2003-1924	20030218
FR 2851255	A1	20040820	FR 2003-5768	20030514
WO 2004076659	A2	20040910	WO 2004-FR354	20040217
WO 2004076659	A3	20041216		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1597364	A2	20051123	EP 2004-711626	20040217
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK			
US 2005054060	A1	20050310	US 2004-781499	20040218
PRIORITY APPLN. INFO.:			FR 2003-1924	A 20030218
			FR 2003-5768	A 20030514
			FR 2003-5769	A 20030514
			FR 2003-13054	A 20031106
			WO 2004-FR354	W 20040217

AB The present invention refers to a method of obtaining a genetically modified microorganism producing 2-amino-4-(alkylmercapto)butyric acid starting from acylhomoserine and alkyl-mercaptan. In particular, the aforementioned micro-organism produces L-methionine, by metabolizing a simple carbon source such as glucose or sucrose and methyl-mercaptan.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 7 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2004-618123 [60] WPIDS  
 CROSS REFERENCE: 2004-618124 [60]; 2004-653418 [63]  
 DOC. NO. CPI: C2004-222428  
 TITLE: New strains of microorganisms that produce  
 2-amino-4-alkylthio-butyric acid, useful for  
 preparing L-methionine, from simple carbon source and  
 a mercaptan or its salt, have modified methionine  
 synthase activity.  
 DERWENT CLASS: B04 B05 D16  
 INVENTOR(S): CHATEAU, M; GONZALES, B; SOUCAILLE, P  
 N P  
 PATENT ASSIGNEE(S): (META-N) METABOLIC EXPLORER  
 COUNTRY COUNT: 1  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
FR 2851255	A1	20040820	(200460)*		68

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
FR 2851255	A1	FR 2003-5768	20030514

PRIORITY APPLN. INFO: FR 2003-1924 20030218

AN 2004-618123 [60] WPIDS  
 CR 2004-618124 [60]; 2004-653418 [63]  
 AB FR 2851255 A UPAB: 20041001

NOVELTY - Strain (A) of a microorganism which produces a  
 2-amino-4-alkylthio-butyric acid (I) by metabolizing a simple sugar  
 and a thiol (II), or its salt, and has at least one gene encoding an  
 enzyme with modified methionine synthase (MS) activity.

DETAILED DESCRIPTION - Strain (A) of a microorganism which  
 produces a 2-amino-4-alkylthio-butyric acid of formula (I)  
 $RS-(CH_2)_2-CHNH_2-COOH$  (I) by metabolizing a simple sugar and a thiol  
 (II),  $R'-SH$ , or its salt, and has at least one gene encoding an enzyme  
 with modified methionine synthase (MS) activity.

$R$  = 1-8C linear or branched alkyl, optionally substituted by one  
 or more hydroxy or by (hetero)aryl with one or more nitrogen or sulfur  
 atoms in the ring, i.e. phenyl, pyridyl, pyrrolyl, pyrazolyl,  
 triazolyl, tetrazolyl, thiazolyl or thienyl;

$R'$  = hydrogen or as  $R$ .

INDEPENDENT CLAIMS are also included for the following:

- (1) modified cystathionine gamma -synthase (X) having MS  
 activity;
- (2) nucleic acid (NA) that encodes (X);
- (3) cloning and/or expression vector containing (NA) and elements  
 for regulating expression and transcription of (X);
- (4) method of screening for a bacterial strain that has a gene  
 encoding (X) or an acylhomoserine sulphydrylase (Y), for preparation  
 of (A); and
- (5) method for producing (I) by culturing (A) or by using MS  
 activity present in activated bacteria or their extracts.

USE - (A) are specifically used for fermentative production of  
 L-methionine.

ADVANTAGE - (A) produce L-methionine from a simple carbon source

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and alkylmercaptan, i.e. synthesis of L-Met is independent of synthesis of cysteine; the methyl mercaptan used is a toxic waste product from the petrochemical industry and synthesis of L-Met occurs in a single step from O-(acetyl or succinyl)-L-homoserine.  
Dwg.0/9

FILE 'HOME' ENTERED AT 12:12:40 ON 16 MAR 2006



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=> d his ful

(FILE 'CAPLUS' ENTERED AT 11:10:09 ON 16 MAR 2006)

DEL HIS Y

D COST

FILE 'REGISTRY' ENTERED AT 11:30:13 ON 16 MAR 2006

E METHIONINE/CN  
L1 2 SEA ABB=ON PLU=ON METHIONINE/CN  
E CYSTEINE/CN 5  
L2 2 SEA ABB=ON PLU=ON CYSTEINE/CN  
E CYSTEIN/CN 5  
L3 1 SEA ABB=ON PLU=ON CYSTEIN/CN  
L\*\*\* DEL 2 S L2 OR L3  
L\*\*\* DEL 4 S (THREONINE OR LYSINE OR ISOLEUCINE)/CN  
L4 6 SEA ABB=ON PLU=ON (THREONINE OR LYSINE OR ISOLEUCINE)/CN  
  
E CARBOHYDRATES/CN 5  
E CARBOHYDRATE/CN 5  
L5 10 SEA ABB=ON PLU=ON L1 OR L2 OR L3 OR L4  
E NADPH/CN 5  
L6 1 SEA ABB=ON PLU=ON NADPH/CN  
E NADP/CN 5  
L7 1 SEA ABB=ON PLU=ON NADP/CN  
L8 2 SEA ABB=ON PLU=ON L6 OR L7

FILE 'HCAPLUS' ENTERED AT 11:32:28 ON 16 MAR 2006

L9 27590 SEA ABB=ON PLU=ON (L5 OR METHIONINE OR CYSTEIN# OR  
THREONINE OR LYSINE OR ISOLEUCINE OR ISO LEUCINE OR SUGAR  
OR CARBOHYDRATE OR NUCLEIC OR DNA OR DEOXYRIBONUCLEIC OR  
DEOXY RIBONUCLEIC OR LIPID OR LYS OR MET OR CYS OR THR OR  
LYS OR ILE) AND (MICROORGANISM OR MICRO ORGANISM)  
L10 228 SEA ABB=ON PLU=ON L9 AND (L8 OR NADPH OR NADP OR  
(COENZYME OR CO ENZYME) (W) (II OR 2) OR NICOTINAMIDE  
ADENINE(2W)PHOSPHATE OR (TRIPHOSPHOPYRIDINE OR TRI(W) (PHOSP  
HOPYRIDINE OR PHOSPHO PYRIDINE) OR TRIPHOSPHO PYRIDINE) (W)N  
UCLEOTIDE)  
L11 146 SEA ABB=ON PLU=ON L10 AND (PREP? OR PRODUCE# OR PRODUCING  
OR PROD# OR MANUF?)  
L12 16860 SEA ABB=ON PLU=ON (MICROORGANISM OR MICRO ORGANISM) (10A) (  
PREP? OR PRODUCE# OR PRODUCING OR PROD# OR MANUF?)  
L13 3502 SEA ABB=ON PLU=ON L12 AND (L5 OR METHIONINE OR CYSTEIN#  
OR THREONINE OR LYSINE OR ISOLEUCINE OR ISO LEUCINE OR  
SUGAR OR CARBOHYDRATE OR NUCLEIC OR DNA OR DEOXYRIBONUCLEIC  
OR DEOXY RIBONUCLEIC OR LIPID OR LYS OR MET OR CYS OR THR  
OR LYS OR ILE)  
L14 77 SEA ABB=ON PLU=ON L13 AND (L8 OR NADPH OR NADP OR  
(COENZYME OR CO ENZYME) (W) (II OR 2) OR NICOTINAMIDE  
ADENINE(2W)PHOSPHATE OR (TRIPHOSPHOPYRIDINE OR TRI(W) (PHOSP  
HOPYRIDINE OR PHOSPHO PYRIDINE) OR TRIPHOSPHO PYRIDINE) (W)N  
UCLEOTIDE)  
L\*\*\* DEL 1 S L14 AND CHATEAU ?/AU  
D KWIC  
L\*\*\* DEL 1 S L15 AND CULTUR?  
L15 5 SEA ABB=ON PLU=ON L14 AND CULTUR?  
D KWIC

FILE 'REGISTRY' ENTERED AT 11:39:51 ON 16 MAR 2006

Searcher : Shears 571-272-2528

10/781499

FILE 'HCAPLUS' ENTERED AT 11:39:51 ON 16 MAR 2006

D QUE L15

D L15 1-5 .BEVSTR

FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH,  
JICST-EPLUS, JAPIO' ENTERED AT 11:39:52 ON 16 MAR 2006

L16 25 SEA ABB=ON PLU=ON L15  
L17 25 DUP REM L16 (0 DUPLICATES REMOVED)  
D 1-25 IBIB ABS

FILE 'REGISTRY' ENTERED AT 11:43:52 ON 16 MAR 2006

D CN L6

D CN L7

FILE 'HCAPLUS' ENTERED AT 11:44:28 ON 16 MAR 2006

L18 2213 SEA ABB=ON PLU=ON L12(L) (L5 OR METHIONINE OR CYSTEIN# OR  
THREONINE OR LYSINE OR ISOLEUCINE OR ISO LEUCINE OR SUGAR  
OR CARBOHYDRATE OR NUCLEIC OR DNA OR DEOXYRIBONUCLEIC OR  
DEOXY RIBONUCLEIC OR LIPID OR LYS OR MET OR CYS OR THR OR  
LYS OR ILE)  
L19 16 SEA ABB=ON PLU=ON L18(L) (L8 OR NADPH OR NADP OR (COENZYME  
OR CO ENZYME) (W) (II OR 2) OR NICOTINAMIDE ADENINE(2W) PHOSP  
HATE OR (TRIPHOSPHOPYRIDINE OR TRI(W) (PHOSPHOPYRIDINE OR  
PHOSPHO PYRIDINE) OR TRIPHOSPHO PYRIDINE) (W) NUCLEOTIDE)  
D QUE  
L20 13 SEA ABB=ON PLU=ON L19 NOT L15  
D 1-13 .BEVSTR

FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH,  
JICST-EPLUS, JAPIO' ENTERED AT 11:47:38 ON 16 MAR 2006

L21 52 SEA ABB=ON PLU=ON L19  
L22 38 SEA ABB=ON PLU=ON L21 NOT L16  
L23 24 DUP REM L22 (14 DUPLICATES REMOVED)  
D QUE  
D QUE L21  
L24 1 SEA ABB=ON PLU=ON L21 AND "CHATEAU"?/AU  
D KWIC  
L25 4 SEA ABB=ON PLU=ON L21(L) MODIF?  
L26 1 SEA ABB=ON PLU=ON L21(L) EVOLV?  
D KWIC  
L27 14 SEA ABB=ON PLU=ON L21(L) (METHOD OR TECHNIQUE)  
L28 7 SEA ABB=ON PLU=ON (L25 OR L26 OR L27) NOT L16  
L29 7 DUP REM L28 (0 DUPLICATES REMOVED)  
D QUE L25  
D QUE L26  
D QUE L27  
D 1-7 IBIB ABS

FILE 'MEDLINE' ENTERED AT 11:55:55 ON 16 MAR 2006

L\*\*\* DEL 0 S (MICROORGANISM AND NADP)/CT  
L\*\*\* DEL 0 S (MICROORGANISMS AND NADP)/CT

FILE 'STNGUIDE' ENTERED AT 11:56:43 ON 16 MAR 2006

FILE 'MEDLINE' ENTERED AT 11:56:51 ON 16 MAR 2006

L\*\*\* DEL 606 S (NADP AND (METHIONINE OR CYSTEINE OR THREONINE OR LYSINE  
L30 625 SEA ABB=ON PLU=ON (NADP AND (METHIONINE OR CYSTEINE OR  
THREONINE OR LYSINE OR ISOLEUCINE OR SUGARS OR NUCLEIC  
ACIDS OR LIPIDS))/CT

Searcher : Shears 571-272-2528

10/781499

L\*\*\* DEL 0 S L30 AND CHATEAU ?/AU  
L\*\*\* DEL 0 S L30 AND METHODS & TECHNIQUES/CT  
L\*\*\* DEL 0 S L30 AND METHODS AND TECHNIQUES/CT  
L31 24 SEA ABB=ON PLU=ON L30 AND METHODS/CT  
D KWIC  
E BACTERIA/CT 5  
L32 68295 SEA ABB=ON PLU=ON BACTERIA/CT  
L33 0 SEA ABB=ON PLU=ON L31 AND L32  
L34 4 SEA ABB=ON PLU=ON L30 AND L32  
D QUE  
D L34 1-4 .BEVERLYMED

FILE 'CAPLUS, MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH,  
JICST-EPLUS, JAPIO' ENTERED AT 12:03:10 ON 16 MAR 2006

L35 263 SEA ABB=ON PLU=ON "CHATEAU M"?/AU  
L36 6840 SEA ABB=ON PLU=ON "GONZALEZ B"?/AU  
L37 82 SEA ABB=ON PLU=ON ("MEYNIAL SALLES I"? OR "SALLES  
MEYNIAL I"? OR "SALLES I"? OR "MEYNIAL I"?)/AU  
L38 301 SEA ABB=ON PLU=ON "SOUCAILLE P"?/AU  
L39 19 SEA ABB=ON PLU=ON "ZINK O"?/AU  
L40 2 SEA ABB=ON PLU=ON L35 AND L36 AND L37 AND L38 AND L39  
L41 11 SEA ABB=ON PLU=ON L35 AND (L36 OR L37 OR L38 OR L39)  
L42 7 SEA ABB=ON PLU=ON L36 AND (L37 OR L38 OR L39)  
L43 32 SEA ABB=ON PLU=ON L37 AND (L38 OR L39)  
L44 4 SEA ABB=ON PLU=ON L38 AND L39  
L45 7451 SEA ABB=ON PLU=ON L35 OR L36 OR L37 OR L38 OR L39  
L46 2 SEA ABB=ON PLU=ON (L43 OR L45) AND L14  
L47 12 SEA ABB=ON PLU=ON L40 OR L41 OR L44 OR L46 OR L42  
L48 7 DUP REM L47 (5 DUPLICATES REMOVED)  
D 1-7 IBIB ABS

FILE 'HOME' ENTERED AT 12:12:40 ON 16 MAR 2006

#### FILE REGISTRY

Property values tagged with IC are from the ZIC/VINITI data file  
provided by InfoChem.

STRUCTURE FILE UPDATES: 14 MAR 2006 HIGHEST RN 876856-38-1

DICTIONARY FILE UPDATES: 14 MAR 2006 HIGHEST RN 876856-38-1

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

\*\*\*\*\*

\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*

\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMI  
for details.

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REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

#### FILE HCAPLUS

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FILE COVERS 1907 - 16 Mar 2006 VOL 144 ISS 12  
FILE LAST UPDATED: 15 Mar 2006 (20060315/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

#### FILE MEDLINE

FILE LAST UPDATED: 15 MAR 2006 (20060315/UP). FILE COVERS 1950 TO DA

On December 11, 2005, the 2006 MeSH terms were loaded.

The MEDLINE reload for 2006 is now (26 Feb.) available. For details on the 2006 reload, enter HELP RLOAD at an arrow prompt (=>).  
See also:

<http://www.nlm.nih.gov/mesh/>  
[http://www.nlm.nih.gov/pubs/techbull/nd04/nd04\\_mesh.html](http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html)  
[http://www.nlm.nih.gov/pubs/techbull/nd05/nd05\\_med\\_data\\_changes.ht](http://www.nlm.nih.gov/pubs/techbull/nd05/nd05_med_data_changes.ht)  
[http://www.nlm.nih.gov/pubs/techbull/nd05/nd05\\_2006\\_MeSH.html](http://www.nlm.nih.gov/pubs/techbull/nd05/nd05_2006_MeSH.html)

OLDMEDLINE is covered back to 1950.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2006 vocabulary.

This file contains CAS Registry Numbers for easy and accurate substance identification.

#### FILE BIOSIS

FILE COVERS 1969 TO DATE.

CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT  
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 15 March 2006 (20060315/ED)

#### FILE EMBASE

Searcher : Shears 571-272-2528

10/781499

FILE COVERS 1974 TO 10 Mar 2006 (20060310/ED)

EMBASE has been reloaded. Enter HELP RLOAD for details.

The updates on February 20 and 24, 2006, were incomplete due to a technical problem. The problem has been corrected, and the missing records were included in the update on March 3, 2006. If you received SDI results from the original updates on February 20 and 24, you will automatically be credited for the update that was rerun on March 3.

If you have any questions, please contact your STN Service Center.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE WPIDS

FILE LAST UPDATED: 15 MAR 2006 <20060315/UP>  
MOST RECENT DERWENT UPDATE: 200618 <200618/DW>  
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,  
PLEASE VISIT:  
[http://www.stn-international.de/training\\_center/patents/stn\\_guide.pdf](http://www.stn-international.de/training_center/patents/stn_guide.pdf)

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE  
<http://scientific.thomson.com/support/patents/coverage/latestupdates/>

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER  
GUIDES, PLEASE VISIT:  
<http://scientific.thomson.com/support/products/dwpi/>

>>> FAST-ALERTING ACCESS TO NEWLY-PUBLISHED PATENT  
DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX  
FIRST VIEW - FILE WPIFV.  
FOR FURTHER DETAILS:  
<http://scientific.thomson.com/support/products/dwpifv/>

>>> THE CPI AND EPI MANUAL CODES WILL BE REVISED FROM UPDATE 200601.  
PLEASE CHECK:  
<http://scientific.thomson.com/support/patents/dwpioref/reftools/classif>

>>> PLEASE BE AWARE OF THE NEW IPC REFORM IN 2006, SEE  
[http://www.stn-international.de/stndatabases/details/ipc\\_reform.html](http://www.stn-international.de/stndatabases/details/ipc_reform.html)  
<http://scientific.thomson.com/media/scpdf/ipcrdwpi.pdf> <<<

FILE CONFSCI

FILE COVERS 1973 TO 25 May 2005 (20050525/ED)

CSA has suspended updates until further notice.

FILE SCISEARCH

FILE COVERS 1974 TO 9 Mar 2006 (20060309/ED)

SCISEARCH has been reloaded, see HELP RLOAD for details.

FILE JICST-EPLUS

Searcher : Shears 571-272-2528

10/781499

FILE COVERS 1985 TO 13 MAR 2006 (20060313/ED)

THE JICST-EPLUS FILE HAS BEEN RELOADED TO REFLECT THE 1999 CONTROLLED TERM (/CT) THESAURUS RELOAD.

FILE JAPIO

FILE COVERS APR 1973 TO OCTOBER 27, 2005

>>> GRAPHIC IMAGES AVAILABLE <<<

>>> NEW IPC8 DATA AND FUNCTIONALITY NOT YET AVAILABLE IN THIS FILE.  
USE IPC7 FORMAT FOR SEARCHING THE IPC. WATCH THIS SPACE FOR FURTHER DEVELOPMENTS AND SEE OUR NEWS SECTION FOR FURTHER INFORMATION ABOUT THE IPC REFORM <<<

FILE STNGUIDE

FILE CONTAINS CURRENT INFORMATION.

LAST RELOADED: Mar 10, 2006 (20060310/UP).

FILE CAPLUS

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FILE COVERS 1907 - 16 Mar 2006 VOL 144 ISS 12

FILE LAST UPDATED: 15 Mar 2006 (20060315/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>

FILE HOME